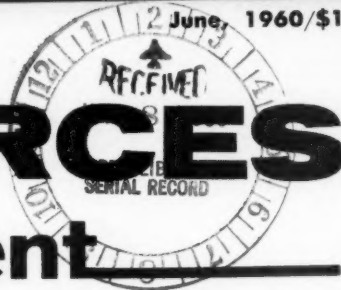


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# ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS



Why Work Measurement? . . . p. 23

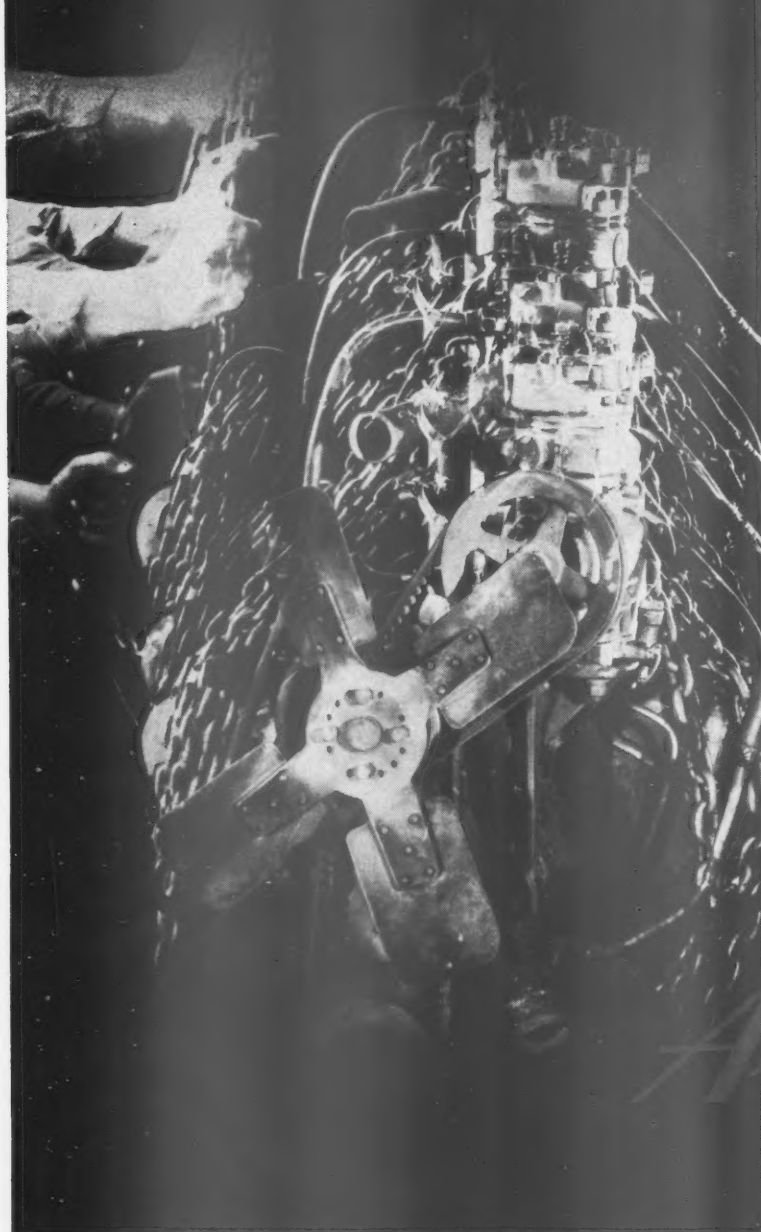
Contract Management—By Exception

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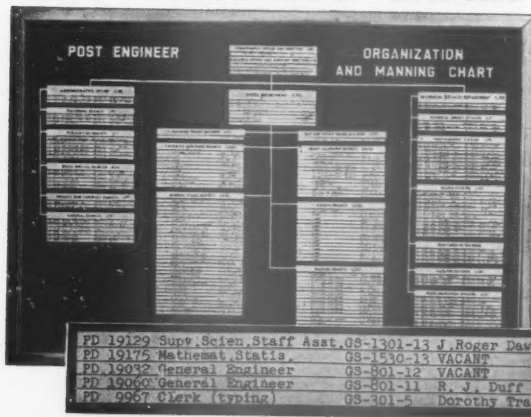
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ARMED FORCES MANAGEMENT



# ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS

June, 1960

Volume 6—No. 9

## FEATURES

### Why Work Measurement? ..... 23



A series of answers to what can become a \$64 question for management. Given the basic question, there are many corollaries that the competent manager must consider: How does work measurement work . . . In what ways can it be used . . . How does it apply to the specific situation . . . What kinds of measurement are there, and which is best. The author provides answers to these and other basic questions that the military manager must ask before using work measurement as an effective management tool.

### Efficiency Reports: Who's Rating Who? ..... 25

The efficiency—or effectiveness—reporting system is an undeniable necessity in today's large and wide-spread military establishment. But given this first premise, it must follow that the reporting system used is the best that can be devised. This article attempts to point out one obvious flaw in the system as it exists—the variable nature of the rating officer.

### Contract Management — By Exception ..... 27

A rundown of the management techniques used in an organization that must keep track of one of the single largest dollar volume businesses in the world. Few items could be more basic or important than contracting, and this is how it is handled.

### Pentagon Profile—This Month: Brig. Gen. C. F. von Kann .... 33

Director of Army Aviation—"I won't say the situation is insoluble, but it certainly is challenging . . . Army aviation is a specialty that must be nourished."

### Special Report on AFMA National Conference. .... 46

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## FEATURED NEXT MONTH

*Special Issue on Electronic Data Processing—The problems, the progress, the outlook for the future.*

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Sylvania leadership in digital data processing is typified by its most recent achievement: design and development of MOBIDIC. This solid state, mobile computer will give field armies real-time solutions to many intelligence and reconnaissance problems, almost instantaneous answers to operational problems involving logistics, inventory control, etc. Sylvania has also pioneered in

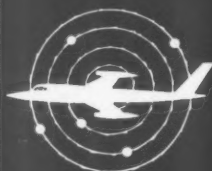
developing electronically driven electroluminescent display equipments and systems. SYLVANIA ELECTRONIC SYSTEMS has subsystem management and development responsibility for the data processing portion of the Air Force BMEWS program, including new and advanced concepts of 3-dimensional data take-off circuitry and equipment.



## Detection and Tracking Systems

SYLVANIA ELECTRONIC SYSTEMS has an advanced capability in high resolution, electronically scanned radar. Example: Sylvania has man-

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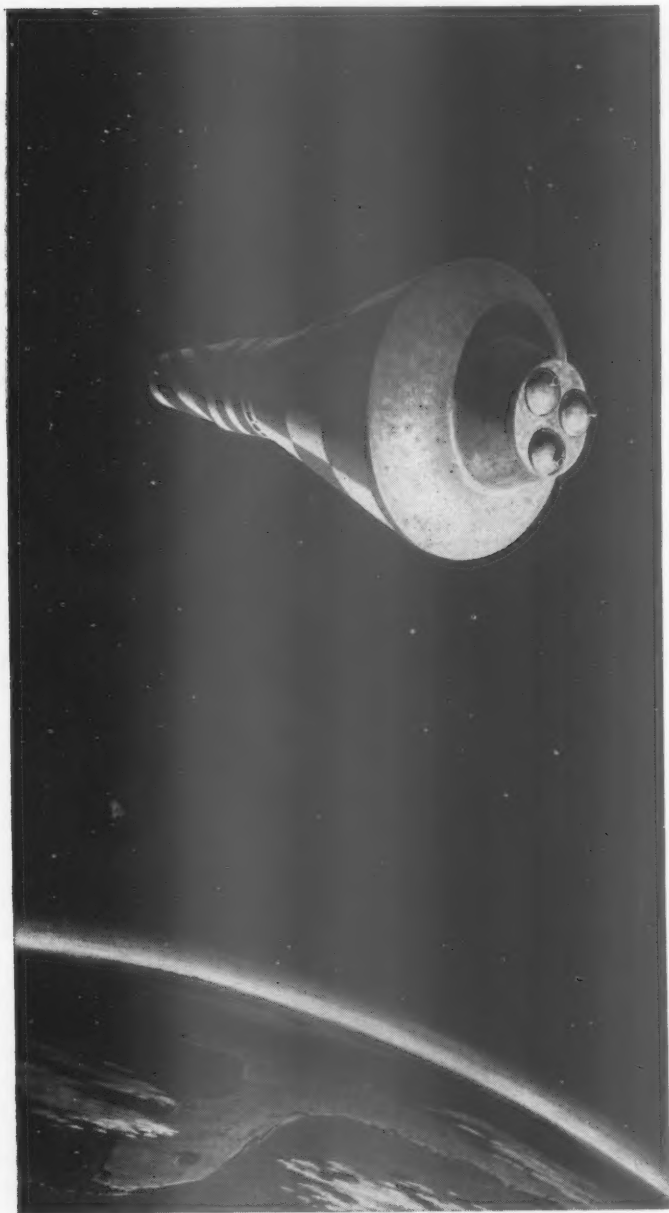
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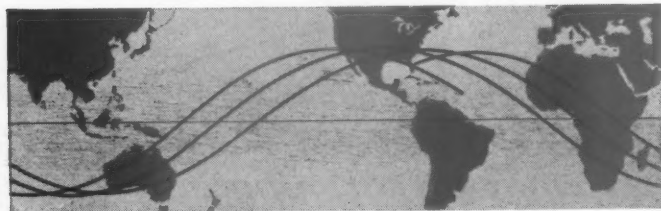
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# BELL TELEPHONE SYSTEM



*An artist's conception of the astronaut's capsule in orbit*



*Black lines represent expected orbits of the astronaut's capsule. Project Mercury ground stations will be close to the orbital path*

**is helping to create the  
world-wide communications  
and tracking network for  
America's first man into space**

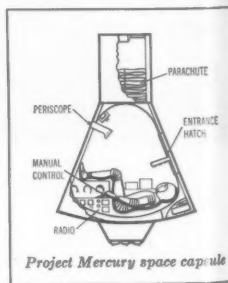
Another epoch-making space communications assignment was recently given to the Bell System.

Because of our experience in this field, we have been asked to set up a communication, telemetry and tracking network which will girdle the globe and maintain contact for Project Mercury—America's effort to put a man into orbit.

Western Electric, the Bell System's manufacturing and supply unit, heads an industrial team which will design and build this network for the National Aeronautics and Space Administration.

In all, 18 stations around the world are being constructed for the network, using existing radar and communication facilities where possible. The network's mission: to track and monitor the flight of the space capsule, transmit signals to its operating instruments, and provide a dependable voice channel between the astronaut and his colleagues on earth.

Creating communications systems for the space era which are as reliable as man can make them is familiar work for the Bell System. It's a natural development of the telephone system which serves you so well today, and will serve you still better in the future.



*Project Mercury space capsule*

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# ICBM: The Monstrous Illusion

FOR the past three months ARMED FORCES MANAGEMENT has been running a series on National Military Strategy.

The basic theme: City-busting de-population of whole nations—the perverted interpretation which has lately been placed upon the massive retaliation concept—is a militarily untenable course which, if we continue to follow it, will lead us only to our own grave.

To that admittedly out-voted group whose objections have been voiced in this magazine the path we have set to our own destruction is, in the present trend, inevitable. Their concern: Unless the decisions to change course are made now, when we are faced with submitting to either blackmail or surrendering the Free World piecemeal, there will be no time left, then, to develop the long lead time hardware we will need to counter the challenge—which clearly is coming.

The only justifiable objective of a military force in war must be to defeat the opposing military force—best achieved by direct attack. Evidently mesmerized by the missile, our top planners, including the President himself, are deluding themselves and the Free World into believing that reliance primarily on the indiscriminately destructive capability of the ICBM will amount to deterrence of that military force.

This is clearly an error. The most effective, almost guaranteed defense against this glamorous monster is mobility.

The ICBM or IRBM, with irreducible flight time and no hunt-and-seek talents, can be fired only at fixed targets. With military forces inevitably going mobile to escape this big bullet, it will have few targets worthy of its attention in a few years other than cities. Destruction of an enemy's industrial base, government centers, or urban areas cannot win or lose a war. It amounts only to insurance that an enemy will not employ a cities-and-people concept against us.

A strategic military force cannot be defeated unless we possess a demonstratable capability to bring all of the enemy's strategic offensive systems under attack. Only aerospace forces possess the capability to attack other than fixed military targets within an enemy nation.

(Aerospace, Air Force usage notwithstanding, means here a force of land, sea and air elements. Closest single setup at present: the combined Marine, air and sea elements of Navy. This single military force, incidentally, is the most solid reason behind Air Force's long standing proposal of a single military service.)

The only thing these big blasts really accomplish will be genocide. Just because scientists today have enabled us to do a more effective job of our own obliteration, it does not necessarily follow that what was once a by-product of any war has now become the cause of war's prevention. Wars are deterred only while the potential aggressor's military force has no reasonable assurance of defeating the opposing military force.

Any careful analysis of this whole basic debate on doctrine, strategy and tactics, indicates that, almost without quite understanding why, a large segment of the Free World is squirming under the untenable threats to our own survival we dreamed up in this counter-nation theory. As a matter of fact, the concept is so unsavory that professionals tend to shy away from labelling it outright, use instead a tag line like "counter force," and then discuss the opposing force as though it were comprised of cities and citizens.

One example: the widely prevalent confusion over the differences between "general war" and "limited war." This confusion all started about the same time retaliation came to mean about the same thing as mass murder. Actually, there should be no difference, or any reason one should have to be defined. War is war is war. The basic reason we now pretend there is a difference: the so-called limited war forces are still designed and constructed logically and legitimately to combat other military forces. And general war means indiscriminately splattering the earth with destruction in an insane act of mass suicide which won't affect the outcome of the military conflict at all.

Unless we commence at once to lay down finite hardware programs designed to combat a mobile military enemy, we will be forced to flail away ineffectively at large stationary, non-military targets. A few hours of such insane foolishness would make the outcome obvious to even the rankiest amateur in the streets.

Why the concern now, since we can counter the existing military force today? Because obviously the programs that most need doing for the future are receiving the rottenest shake in the budget. Example: The nuclear powered aircraft with its inherent characteristics of high survivability and strong counter attack against an opposing mobile force, has been operating on a sick budget for years.

And ANP is only one of dozens of programs that have been shot up, watered down, or sunk all together for the same head-in-the-sand reason. At best, present decision making is guaranteeing we will be in an expensive, crash program hardware development for at least the next ten years. At worst, we are ignoring our responsibilities to build a deterrent military force to answer the obviously approaching threat—and sacrificing the Free World to our own short sightedness in the bargain.

If defendants of present international genocide policy appear to feel that this new massively destructive power means we needn't be concerned any longer with pushing progress in strategic planning back out in front of equipment development where it belongs. The answer?

Nearly 15 years ago, Army Air Corps General Hap Arnold warned, "present equipment is but a step in progress and any Air Force which does not keep its doctrine ahead of its equipment and its vision far into the future can only delude the nation into a false sense of security."

Bill Borklund

# WHICH IS BEST

## 3 new series Cat Motor Graders

### NEW

**No. 12**  
**Series E**  
**115 HP**

### NEW

**TURBOCHARGED**  
**No. 112**  
**Series F**  
**100 HP**

### NEW

**No. 112**  
**Series E**  
**85 HP**

## for higher production, easier servicing and long life!

No machine is better than its engine—and the new Cat Diesel Engines in these three new series Motor Graders are better than ever. They're more compact, more rugged and modern in design. They incorporate the latest developments in metallurgy and technology. They provide three important bonuses—greater lugging ability in tough going, easier servicing and long life.

#### A COMPLETE LINE—85 HP to 150 HP

The new Turbocharged 100 HP No. 112F is designed for high production to match work requirements between the new 85 HP No. 112E and new 115 HP No. 12E. Compared with the 85 HP model, the 100 HP machine delivers 5% higher travel speeds and a 5% increase in blade speed control. With its introduction into the line, Caterpillar now offers you a choice of four Motor Graders in all to meet your specific requirements. The largest is the Turbocharged 150 HP No. 14, the most versatile big grader ever developed.

#### NEW FEATURES—DEPENDABLE PERFORMANCE

Some of the features of the new Cat Motor Graders are described briefly here. The real proof of dependability is in the performance of these machines under all types of working conditions. Experience has shown that these new series Motor Graders are designed to "pull through" tough going. With horsepower ranging from 85 to 150, there's a right size Caterpillar Motor Grader whatever the job. Caterpillar Tractor Co., Defense Products Dept., Peoria, Ill.

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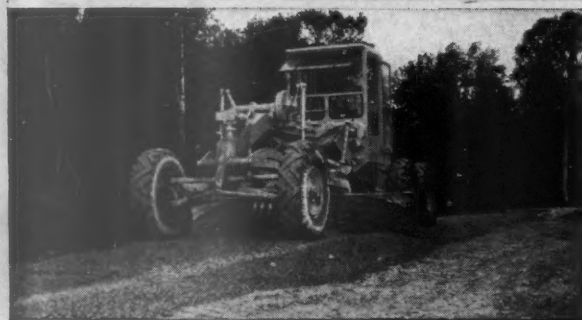
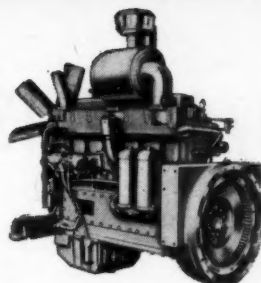
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# FOR YOUR JOB?

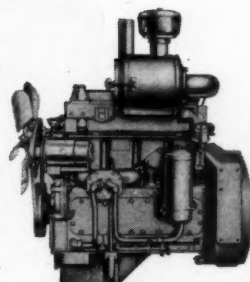
## with new compact engines!



New No. 12E Motor Grader  
features new compact  
115 HP Engine



New No. 112E Motor Grader  
features new compact  
85 HP Engine



The new No. 112F is similar  
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Turbocharged 100 HP Engine.

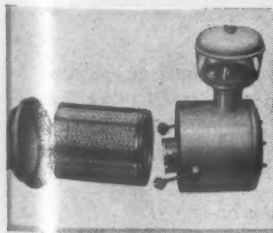
**NEW HIGH TORQUE.** Though the engines in the new Cat Motor Graders are designed specifically for each machine, they all develop higher torque than previous models and have other basic improvements in common. For example: shorter, stiffer blocks and crankshafts... stronger, distortion-resistant cylinder heads... improved cooling systems with greater capacity... engine lubricating oil conditioning... and advanced design fuel systems

—new, compact fuel injection pumps with barrel and plunger assemblies in easy-to-service pump housings.

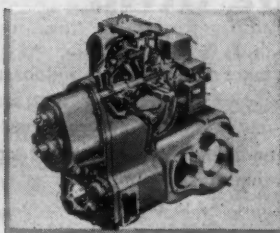
**NEW STARTING ENGINE.** Now standard is a new two-cylinder, vertical starting engine to replace the horizontal engine. All three Motor Graders use a modern 12-volt electric system. An optional 24-volt system is available for use in moderate climates where direct electric starting is practical.

**PERFORMANCE-PROVED FEATURES.** While many advances have been designed into the compact new engines, certain time-tested features have been retained. To mention a few: precombustion chamber design that delivers maximum horsepower on heavy, economy-type fuels... steel-back aluminum bearings... wet-type "Hi-Electro" hardened cylinder liners... and aluminum pistons with cast-in ring band.

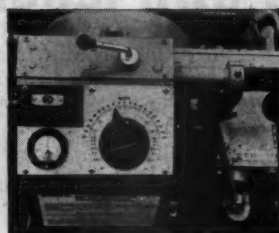
### OTHER HIGH-PRODUCTION FEATURES IN CAT MOTOR GRADERS



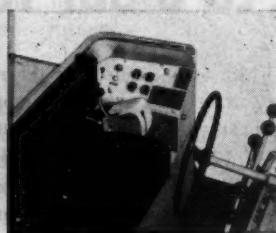
**NEW DRY-TYPE AIR CLEANER** (standard) removes a minimum of 95% of all dirt from intake air during every service hour. Can be serviced in 5 minutes. Cuts your maintenance time by as much as 70% and substantially reduces maintenance costs. Cleaner air also extends engine life.



**EXCLUSIVE OIL CLUTCH** (standard) provides up to 2000 hours service without adjustment, the equivalent of about 12 months of "adjustment-free" operation. A Caterpillar development proved by millions of hours of use, it virtually eliminates down time for clutch repair.



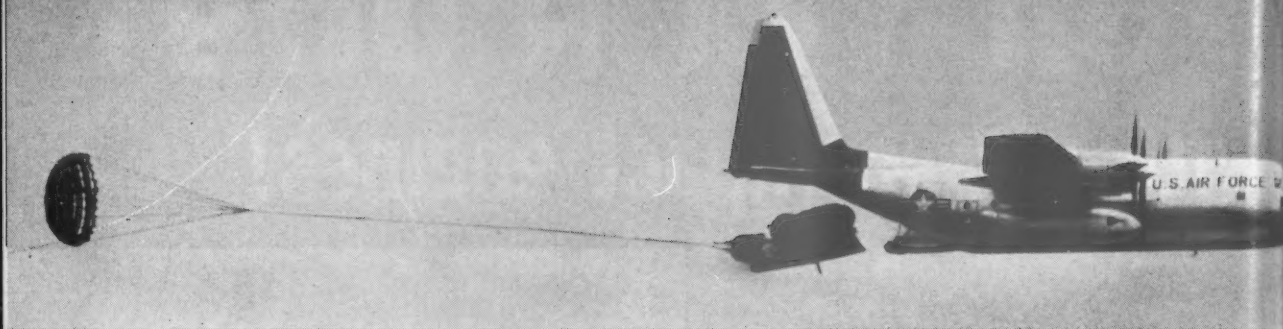
**AUTOMATIC BLADE CONTROL** (optional) cuts grading time in half. Operator sets desired slope on dial and only has to control depth of cut. Manufactured by Preco Incorporated, the unit automatically maintains blade slope within  $\frac{1}{8}$ " in 10'. Available factory installed.



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It takes a minimum of bulldozer work to make an "airhead" for a C-130. Uproot a few trees, scrape off a few high spots and fill a few potholes, and you've got a terminal for transocean non-stop flights that average 370 mph, carry 20 tons of cargo or 92 combat-ready troops.

*Another reason why the Lockheed prop-jet C-130 HERCULES provides more Jet Age airlift per dollar than any other plane now flying, now being produced, now scheduled for production.*

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## Washington Background

**"WORLD WAR II VINTAGE" COMMUNICATIONS** are plaguing Army overseas, particularly in Europe. The drawbacks: in using high-frequency radio, natural phenomena are enough to obviate full reliability "outside of what the enemy might do." Also, use of trans-Atlantic cables is probably not the surest way of getting a message through.

**ANSWER TO THE COMMUNICATIONS PROBLEM** is not immediately in sight, in some ways is analagous to ASW problems because of the great effort being expended by Army. Comments one Army officer, "we are going at it in every way, shape, form and fashion we can." Although satellites techniques offer relief, they are "years away" by one estimate.

**FULL-SCALE MANAGEMENT/COST ANALYSIS** is underway in Bu-Ships, according to Bureau Chief RAdm. R. K. James. Stemming from a report by a panel of senior engineers, areas of improvement include value engineering, a production planning and control program, inventory purifications, and overhaul of ship allowances. Summing up: a project offering long term results and dollar savings, with first returns already in.

**STANDARDIZED CATALOGING IS MAKING GOOD HEADWAY**, under the leadership of AFSSC and Defense S&L. Price tag for this type of work this year: \$500,000. Accelerated Item Reduction progress to date: Air Force cataloging to be finished this year; Army and Navy next in line; final inventory purification by 1961.

**CONSIDERABLE FUROR GREETING PREMATURE 'LEAK'** of proposed Defense Directive which would enforce "policy" control over contractor advertising seems to have overlooked one point, as cited by a heavy defense contractor. "It seems to me that they're just making legal something that has been going on all along. In our own case, just about everything we do along this line is submitted for security review. In this process, the policy questions invariably come up, and I can think of no case in which such differences haven't been ironed out."

**INFORMATION SECURITY STEP IN THE RIGHT DIRECTION** will be included in a directive to be released in the immediate future. New policy will be that when a given piece of hardware is stamped, a tentative date for downgrading or declassification must be set at the same time. Aim is to create an automatic review process that will tend to cut the volume of material that must now be kept in safes.

**OBJECTIONS AND COUNTER-RECOMMENDATIONS HAVE** issued from the Air Force regarding the so-called Reed Report on MATS operations. Briefly, AF flatly said they "would not buy" parts of the report, instead asked for new equipment, modernization, higher use rates, ability to negotiate with both CRAF and non-CRAF carriers for supplementary lift.

**DETERMINATION OF NUMBER AND TYPE OF AIRCRAFT** needed by AF for its hard core transport mission will come this fall, following a JCS study. Specific answer to an old and controversial problem was promised by Assistant AF Sec'y Taylor testifying on the Reed Report before House Government Operations Subcommittee.

**A STUDY OF DEFENSE DEPARTMENT LEGISLATIVE LIAISON** from an organizational and functional standpoint should begin to get underway within a few months, when the heaviest burdens of this Congressional session are beginning to slack off. Generally, the aim is to "see how we can serve both Congress and the services better." Result of the study is likely to be more evolution than revolution, with no violent organizational shakeups likely.



## **SURVIVAL, FOR US AS FOR THE CHAMELEON, DEMANDS VERSATILITY**

You cannot take a chameleon by surprise. It can always adapt itself to the prevailing conditions. It owes its survival to this adaptability. The same principle applies in modern warfare. A defence system which is flexible in application is less likely to be defeated than one which is not.

### **A MISSILE THAT DOES TWO JOBS**

Thunderbird can be used in two ways. It can be used efficiently in a static role operating from a preselected site for as long as it is tactically required there, and it needs no concreting-in. It can also be rapidly re-deployed to meet some new threat should the need arise – and attack seldom hits us where we are expecting it.

Thunderbird can be moved easily and quickly – on wheels or by air. Now in service with the Army and designed round standard service vehicles it can be re-deployed and in action where most needed within hours. Its inherent mobility and air transportability provides that flexibility which is of ever increasing importance in present and future air defence.

### **NEW DEVELOPMENTS**

And evolution still goes on. Already the successor to Thunderbird has been under development for some

considerable time. Using the latest techniques and retaining its full mobility, the new version will provide, among other things, increased low-level capability and longer range.

The Chameleon has survived because its versatile defence gives protection anywhere. Our own survival may equally depend on similar versatility.



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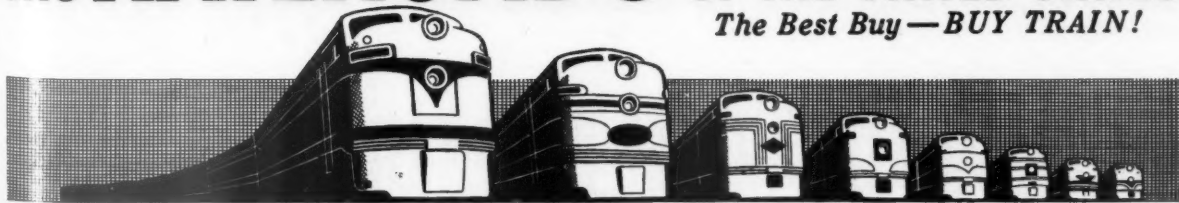


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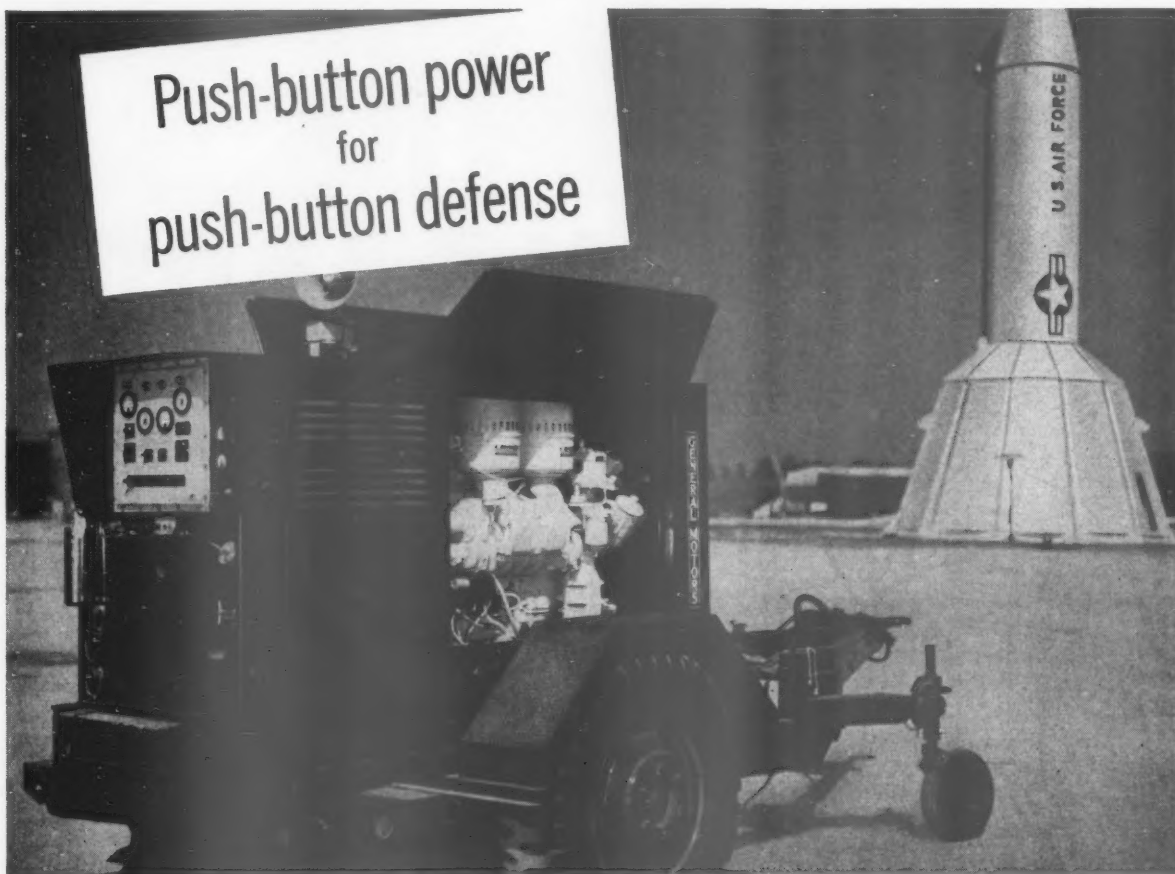
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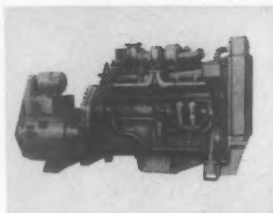
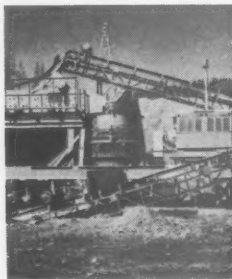
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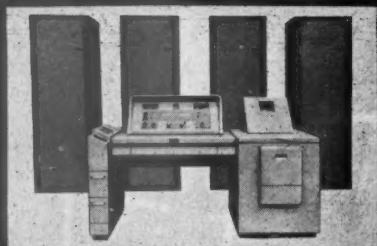
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**The Checkout  
that says  
"GO" or "NO GO"**

# APCHE

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"AP-SHE")



APCHE (Automatic Programmed Checkout Equipment) is a solid-state, universal, high-speed, highly reliable, compact general-purpose tester designed especially for automatic checkout of aircraft, missile and space systems and their supporting systems. In its various versions (differing in input media, size and weight) APCHE installations may be fixed, mobile, airborne or submarineborne. APCHE was designed and is being produced as a part of RCA's ground support electronics subcontract from the Convair (Astronautics) Division of General

Dynamics Corporation, prime contractor for the ATLAS Intercontinental Ballistic Missile.

The system being supplied to Convair for the ATLAS Program includes a console and four rack cabinets providing both analog and discrete test functions with a resulting printed and GO-NO GO indication. As a product of RCA's Missile Electronics and Controls Department, Burlington, Massachusetts, APCHE is one of the latest RCA developments in the field of military weapon readiness equipments.

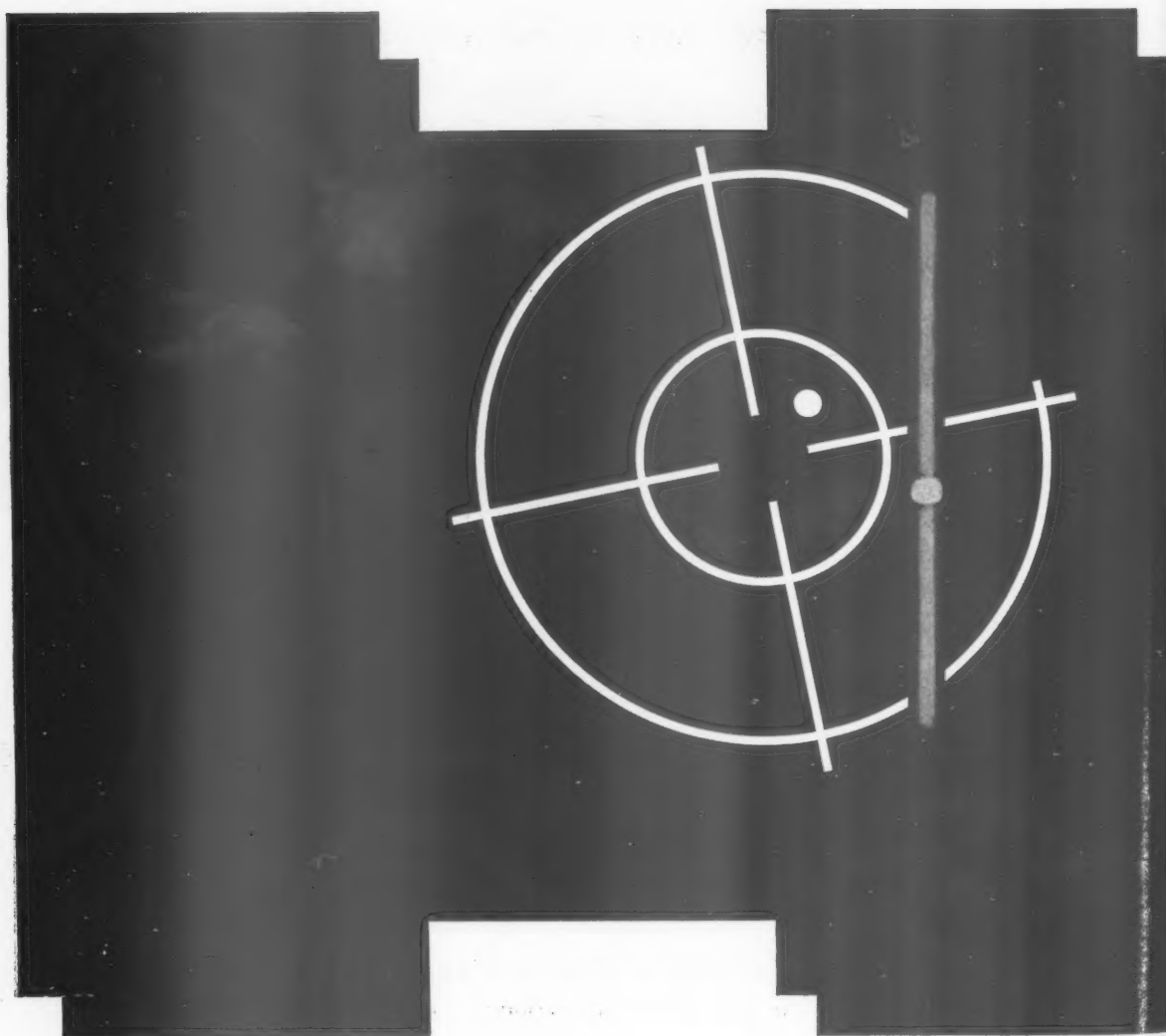


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## How to take a longer look at



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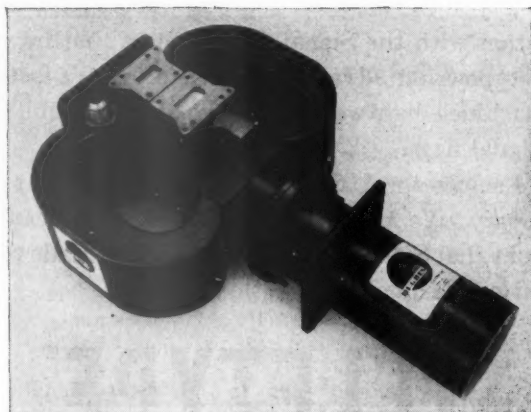


## at air space

**Tomorrow's manned interceptor aircraft—and even faster ones of the future—require radar navigation, target acquisition, armament control and electronic counter-measures systems of vastly greater scope and dimension than ever before.**

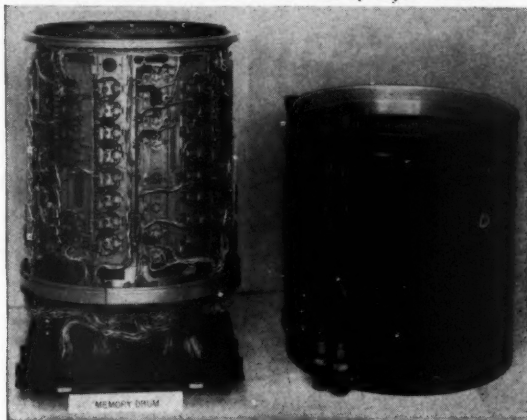
To fulfill this critical requirement Hughes has developed a new advanced radar system which embodies many significant state-of-the-art advances. One of the most significant is a unique and highly advanced Traveling Wave Tube developed in the Hughes Laboratories. This tube's two outstanding advantages: 1) higher power to provide greater range; 2) broader frequency band width for operational flexibility.

In addition, this new Hughes radar system will discriminate against ground return and will detect targets at extreme ranges. Designed to operate in a "hard" counter-measures environment, the system is radar augmented by infrared detection and tracking.



*Heart of the new Hughes radar system is this Traveling Wave Tube which provides greater power and a broader band width.*

*One of the vital "innards" of the new Hughes system is this miniaturized (1.3 cu. ft.) Hughes memory drum which can store over 1 million bits of information.*



This radar system is the latest of a series of pace-setting Hughes systems. The Hughes E-1 was the *first* all-weather interceptor radar system ever developed. The Hughes E-4 system *first* made possible the rocket lead-collision attack. The Hughes E-9 and MG series systems were *first* to automatically stage and fire advanced air-to-air guided missiles. And the Hughes MA-1 system *first* provided complete control of aircraft from take-off to touch down.

Although over 16,000 all-weather interceptor systems have been produced to date. Hughes' radar experience is not limited to interceptor systems. For the Army and Navy, Hughes is producing surface-based 3-dimensional radar systems which utilize electronic, rather than mechanical scanning methods. And the Hughes TARAN system utilizes a high-resolution radar which makes it possible for pilots to fly tactical missions at low altitudes, in any kind of weather!

Foreseeing the needs of the future—and being the *first* to provide for them—is a deeply ingrained tradition at Hughes. Perhaps we can help you solve some of *your* radar system problems. Please write: Hughes Advanced Program Development, Marketing Department, Hughes Airborne Systems, Culver City, California.

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# Why Work Measurement?

*Like any other tool, work measurement must be used correctly to produce its full potential. How the tool is used, and how a particular method of work measurement should be chosen to fit a given situation are described here.*

**"DO** WE really need all those people in the Box Shop?" "Why is Procurement asking for more typists?" "Will time-study give me any answers on this?" "Is there any other kind of work measurement we can use?" "What do we need here?"

This depot commander is trying to decide about a work measurement program, but he isn't sure how one works or what, if anything, it can tell him. Let's answer some of his questions, and give him enough background to ask a few of his own.

**"Why Bother With Work Measurement at All?"** To answer this, let's look at one of his shops. Suppose he has just assigned you as chief of Storage and suggested that your next efficiency report will look a lot better if you can tighten up on the Box Shop. Any funds you can squeeze out of it are desperately needed for in-storage maintenance where he is short of money. Your job is to cut costs, but how do you do it?

Bring work measurement into this picture, and you have a tool to cut costs that neither the shop foreman nor the depot commander can find fault with. This can be done when you know one fact about the workers; that they produce box in nine minutes.

Using this fact, you begin to get an unbiased view of the Shop. Turning out 4000 boxes a day as at present should take 36,000 minutes (4000 boxes x 9 minutes per box) or 600 man-hours or the full time of 75 employees. In addition, each employee needs 15 minutes each morning and afternoon for a coffee break. This takes an additional 37½ hours per day (75 employees x 30 minutes each). At most, 637½ man-hours should be used to produce boxes that now take 800 hours. Your Shop is, then, only 80% efficient, no matter what the foreman contends. Since only 80 employees are needed instead of the 100 being paid, the wages of 20 are going down the drain.

**"How do I Set up a Work Measurement System?"** Work measurement

by **Robert McQuie**  
Office of the Chief Signal Officer  
Department of the Army

gives you only one item of data with which to cut costs: the number of man-hours needed to produce one item. With this figure and a count of the items produced in any one period, you can calculate both an efficiency rating for the organization and the number of employees it really needs. In fact, that is exactly what you did with the Box Shop by using the 9 minute per box figure. To find this key figure two techniques have been used.

Selecting a work indicator is the key to using either. A work indicator is any countable item that results when a fixed amount of man-hours has been used. A typed page, for example, is an indicator of how much a typist is doing. The best indicator is something produced or processed by the work, such as a board sawed or a shipping document typed, and a job may have one indicator or several depending on the variety of tasks assigned to it. If the item produced by the work is not countable, some by-product of it that is countable must be selected as an indicator.

## Varied Indicators

If a shop or office has several kinds of work, several different indicators may be required to measure all the work. In your Box Shop, for example, one section saws boards, another constructs boxes, and a third paints the finished boxes. Each section has its distinctive indicator, and some sections may require several.

**"How is the Time Study Method Used?"** This method finds the key man-hour figure with a stop-watch. It breaks up each job into its smallest blocks of work, finds a work indicator related to each, times each separately, and then combines these times into an overall time for the job as a whole.

These blocks of work are called

processes, operations, elements, and motions. A process is all work in a job that relates directly to any work indicator, and a single job may have one or more indicators. Sawing boards, for example, is a process in the work of making a box. Each process is composed of several operations, each of which is a block of work that can be related to some countable item which is too small or unimportant to be a work indicator. Getting lumber from the storeroom is one operation in the process of sawing boards.

An operation, in turn, is composed of elements, each of which is a block of work that is too small to be related to any countable indicator. Picking up a board is an element in the operation of getting lumber in the process of cutting boards in making a box.

After dividing up the work of a job as above, the second step with the time study method is to simplify the work. Needless elements are removed, others are combined, and tools, work layout, and assignment of duties are simplified.

The third step is to clock the time an average employee takes to do each of the elements. This is a carefully prescribed process in which an inexperienced analyst can easily make mistakes. Since some elements occur more frequently than others in the process, a weighted time is calculated for them depending on their frequency. The observed times may also be adjusted after comparing them with tables of standard times to do the same tasks. Special time allowances are computed to compensate for fatigue, rest periods, and the operator's skill or lack of it. All these times are then added together to find a single time for the entire process.

If you select this method to measure the Box Shop, the section where power saw operators cut boards to size might be analyzed first.

The power sawing process is now ready for work simplification. Perhaps picking up and setting down the rule can be eliminated if the square is also



## Which is best for each job . . .

used to measure with or if a rule is built into the saw table. Perhaps the entire stacking operation can be eliminated if a conveyor belt is installed between the saw room and the box assembly room. In any case, after proposed simplifications have been discussed and put into effect, each element that remains is measured with a stop watch. The resulting times, weighted and adjusted where necessary, are totaled into standards for each of the four operations. Each of these in turn is related to a work indicator.

You would then proceed in the same way to find the time standards for other processes in the Shop: building boxes and painting boxes. Since all work done is related to one of these processes, at least three work indicators and probably more are needed.

*"How is the Statistical Method Used?"* This method establishes one overall standard for a whole shop before even looking at smaller operations and individual jobs. In a warehouse, for example, it would set one overall standard for the complete process of unloading, inspecting, and warehousing a case of canned goods before establishing separate standards on the three individual operations. The statistical standard focuses on the end product instead of the process and it skips the detail wherever possible.

This standard is found by dividing the total number of man-hours used by the number of indicators produced during several different periods of time. These averages will vary, some will be tighter than others. The most representative of them is selected as a standard. There are several ways to make this selection. The easiest, perhaps, is to rank all the averages from tightest to loosest and select the one three quarters up from the bottom.

If the statistical method were used to measure the Box Shop, the first step would be to select an indicator, one that accurately reflects the work of the greatest possible number of employees. You note that each section in the Shop has at least one indicator. Is there, in addition, a single overall indicator that measures the work of all sections combined? But further study shows all departments relate equally well to one overall product: a finished box. With this as an overall indicator, you would proceed next to setting a standard and skip work simplification completely. From existing work records, if available, you would find the number of boxes produced each day for a two week period, and the number of man hours used each day. Man hours are

then divided by boxes, giving ten different average times to produce one box. These averages are ranked from tightest to loosest and the one in the 75th percentile selected as a standard.

*"Can These Two Methods Be Used to Measure Office Work?"* Both methods can be used to measure office work. Let's watch them being used to measure the Clerical Section of the depot's Procurement Office. This Section extracts data from a requisition, types a purchase order to a supplier for the materiel, and files a carbon of it along with the requisition until the order is delivered.

The time and motion method of work measurement would start by breaking down each job into processes, elements, and motions as discussed previously. It would then proceed to eliminate unnecessary blocks of work and simplify others. Perhaps, for example, the initial logging is superfluous. On the other hand, perhaps this duty should be assigned instead to a senior clerk who would also supervise the receiving and file clerks, thus reducing the section chief's span of control from 11 to 5 people.

### No Hold-ups

The statistical method would skip most of the work simplification. Only improvements that could be installed right away would be considered, so that controversial ones do not hold up the job of setting a standard. You would select a work indicator, in this case a processed purchase order. A record is then kept of man-hours used and orders processed each day for two weeks. The average man-hours for all employees combined to process one purchase order would be calculated for each day. One of these averages would be selected as a standard.

*"Which Type of Work Measurement is the Best?"* The particular problem you are facing dictates which method is best for your problem. Generally speaking, however, a program based on the time study technique is more difficult to get started. It is not a technique that inexperienced but competent employees can be assigned to learn by doing. Outsiders cannot evaluate an organization as well as those who are familiar with its unwritten facts of life that influence all employees. Because the statistical technique takes no special training, present employees can be taken from some other type of work and put on statistical standards, with no delay and no reduction in the quality of the standards.

Secondly, the time study technique is slower. The complicated process of analysis, work simplification, and setting of innumerable standards on small elements of work takes more time than setting only one or perhaps two standards for the whole organization. While the time study method generates maximum savings at a slow rate, the statistical method generates acceptable savings at a fast rate, and aims for complete coverage of every department.

Thirdly, the statistical method, unlike time study, will point out in efficient organizations that should be studied in greater detail. Since the statistical method starts by setting overall standards on the main divisions of an installation instead of on each small unit, it finds in general which broad areas are inefficient. With this general guide, the analysts can spend more time and care on them than on the efficient ones. This permits use of time consuming techniques such as work simplification only where needed instead of in every unit studied.

Fourthly, the time study method is less likely to get early support for the work measurement program. If it is just starting, an example of the kind of tool it can produce for top management is needed just as quickly as possible. The quick overall statistical standard on large areas of operation furnishes this example with comparatively little work. The time study method, on the other hand, can produce such an overall standard only after completely and thoroughly studying every office and section. Its initial products are a mass of detailed standards which are difficult to understand and impossible to use in making the broad overall decisions that top management faces. The statistical method will produce an approximate tool that they can use immediately. The time study method will give a more precise figure if you last long enough to compile it.

Finally, the statistical method is more realistic. It accepts the harsh fact that supervisors will use, and are often forced to use, methods of operation that are less than ideal. The statistical method accepts the usual rather than the ideal method of operation and only asks a supervisor to repeat his best days performance a little more often. This sort of standard can be met because it has been met before, although perhaps not too often. Since supervisors believe in it, they will at least try to attain it.

These advantages must be weighed against the greater accuracy of the time study method in deciding for your operation, "What type of work measurement is the best?"



## Efficiency Reports:

# Who's Rating Who?



**As they exist today, officer effectiveness reports have a built-in flaw, an inherent variable that can drastically effect an officer's career. What this flaw is, and what it can result in are discussed here.**

by Lt. Col. Emil V. B. Edmond

THERE are few duty days when some Army officer isn't engaged in rendering an efficiency report on a fellow officer. When completed, this standard form reveals much about both officers involved, each a complicated being in his own right.

"But wait a minute," you say, "only one officer is rated on a single report. This report doesn't show anything about the rating officer!"

I cannot agree with this objection. I maintain the completed efficiency report *does* reflect certain things about the rating officer, along with its evaluation of the rated officer. In other words, I believe there are two variables in every completed efficiency report—the rated officer and the rating officer. And the existence of the latter as a variable creates a definite problem.

But if we are to have efficiency reports to show how each officer has performed his assigned duty, someone has to fill in these reports. The need for this is indisputable.

So we are stuck with a rating system in which duty performance of an officer, a variable factor within the report, is evaluated by another officer, who by virtue of being human constitutes a second variable. (For simplicity's sake we won't consider the endorsing officer who is actually a third variable.)

With both of these variables present in the rating system, can we honestly say the completed efficiency report accurately portrays what it is supposed to—how the rated officer has performed his assigned duty?

The military definitely needs some system to evaluate accurately relative duty performance of its officers. In organizations this large, it is important to have a central system so that officers with greatest potential value to the service can be recognized and properly used. All services, as well as many big business corporations, face the same problem. Army has always seen the need for such a system and has continually tried to develop an effective one.

An event at the start of World War II illustrates one aspect of the problem which has influenced Army's recent efforts. (While this story is fourth- or fifth-hand, and may be partially inaccurate, I believe it still illustrates the point in question.)

At that time Army wanted to promote twenty officers to brigadier general. The people making the selections believed this could be done with no great difficulty if only colonels who had been rated superior throughout

their entire service were considered. But even with this narrow zone of consideration, the records of some one thousand colonels, each with "straight superior" duty performance ratings, came before the promotion board.

This clearly showed the need for a rating system providing a greater spread in efficiency ratings among Army officers. Since then, much experimenting has been done with the efficiency report form in trying to attain this "spread," and some progress has been made. Its contents have been continually reviewed, and changed or rephrased. Also, improvements have been made in scoring completed reports. These refinements all aimed to produce a more definitive evaluation of the rated officer.

But to the best of my knowledge, there has been no attempt to increase *reliability* of individual ratings by controlling the second variable in the system—the rating officer.

### "Hard" and "Easy"

Since the rating officer is essential to our efficiency report system, we must recognize how his presence tends to work against the reliability of any single efficiency rating. It causes a problem simply because the rating officer is a mere human being, possessing his share of the many different physical, mental, and personality characteristics. Although established patterns of human behavior exist, there are still individual differences within the patterns. It is exactly these human differences in rating officers which work against reliable evaluations of comparative ability by means of our present system.

Department of the Army has published a well written and extremely helpful regulation on Personnel Efficiency Ratings. Any officer worth his salt studies this regulation carefully before he completes an OER on a fellow officer. Unfortunately, however, this regulation falls short of molding all rating officers into a single type. Even after contents of the regulation are fully digested, many categories of raters still remain.

At one end of the scale are the so-called "hard" raters, and at the other are the "easy" raters. In between are any number of categories, each differing to some degree from the two extremes.

Now think also of the natural human differences among rating officers and you will begin to see why our present efficiency report system does not give

## Method, personality and opinion . . .

accurate comparative evaluation. There is only a slight possibility that any two officers will rate a third exactly the same. Therefore, the "type" of rating officer has much to do with the actual score received by the rated officer.

A similar conclusion can be reached with a brief analysis of forces at work in the rating procedure. First, there is the way the rated officer performs his duty. (The variable which the efficiency report attempts to measure.)

Then there are the different rating approaches—the method each rating officer uses for his evaluation in each section of the report. Next there are personality differences in the rating officers. And finally, there are honest but frequent differences of opinion when two or more persons try to evaluate the same thing.

These are all variables, and each effects the efficiency score of the rated officer. The first one pertains to the rated officer and has to remain variable if the rating system is to serve any purpose.

The other three relate to the rating officer. It is only logical to assume that more reliable evaluation would result if variables pertaining to the rating officer were somehow controlled.

Here is another way to look at it. What we really hope for under our efficiency report system is an objective evaluation of each officer's duty performance. This is the basic factor we hope to isolate. With the rating officer in the system as a second variable, can we truthfully say the system gives us an accurate evaluation?

### What is the Impact?

What is the impact of all this? AR 623-105, *Personnel Efficiency Ratings* says the efficiency report serves two main ends: "(1) It provides a measure of an officer's overall value to the service, to be used with other information as a basis for personnel actions, and (2) it furnishes information necessary for efficient utilization and assignment of individual officers."

In other words, it is the most important single document available in Department of the Army for such important personnel actions as selection for promotion, military schooling, and important assignments. Eventual use of the completed efficiency report leaves no question on the impact of the rating officer as a variable factor.

It is conceivable that the "type" of rating officer may have greater influ-

ence on an officer's career than the manner he actually performs his duty. This may seem extreme, but I would like to cite two examples of how this could happen.

The first deals with two officers of the same rank. Both have just completed the same duty assignment in different units. An OER must now be rendered on each officer. Let's assume both were *equally* outstanding in performance of their duty. But the chance that they will receive an identical efficiency rating is slight, since each will be rated by a different individual with his own distinct personality.

It is quite possible, then, that the two officers will be rated differently for *equally* outstanding performance, merely because of differences in rating officers. The actual difference in the ratings may be slight, and therefore relatively unimportant. But consider the close competition for promotions, attendance at senior service schools, or key assignments. Minor differences in efficiency ratings gain major significance when outstanding eligibles greatly exceed available spaces.

In a second example, again assume we have two officers with the same duty assignment in different units. Let's say the two are equal in all respects except for the way each has performed his assigned duty. An OER is due on each officer.

The first officer has done only a mediocre job, but his rating officer is an easy rater. On the other hand, the second officer has done outstanding work, but faces a hard rater.

Because of the rating officers, and in spite of the great difference in quality of performance of the two officers, there is a strong chance that when the OER's are scored at Department of the Army, little difference will appear. To go a step further, it is even possible that the average officer may outscore the outstanding officer.

These examples may be called extremes and considered quite unlikely. But they illustrate what can happen in our present report system with no control exercised over the rater. That such situations are possible is openly recognized by Department of the Army. To quote again from AR 623-105, "Too often the efficiency report is a reflection of the rater or the endorser rather than an evaluation of the performance of the rated officer." DA's answer is the Overall Efficiency Index (OEI), a moving average of the most recent efficiency ratings for each officer.

It may be proven that over several

years, as officers change duty assignments and rating officers, that a moving average will balance differences among rating officers. In this light, the OEI may look like an appropriate answer to the objections made here against our present rating system.

But a moving average is little consolation to the hard-rated outstanding officer in our second example, if after three years under this rater, he is one of four thousand eligibles up for promotion on a best qualified basis, with only a few hundred available vacancies. And what have these ratings done to his chances of being selected for one of the senior service schools in the near future?

Consider what his chances might have been if his outstanding performance had been evaluated by the easy rater during these three critical years.

It seems plain that our present efficiency report system is not reliable because of the second variable—the rating officer. Since the system is designed to measure quality of duty performance, this should be the only inherent variable. And this variable should range throughout the quality spectrum so that some "spread" can be obtained among rated officers. If we want a reliable efficiency report system, some control must be exercised over the rating officer so that he will no longer be a variable within the system.

### What is Needed

If this variable is to be eliminated, I believe that experiments with the contents of the efficiency report form should be discontinued for the time being. Efforts to improve the system should be directed toward uniformity among rating officers.

The completed efficiency report must reflect the true manner in which the rated officer performed his duty. What we need is an efficiency report system which will give us a reliable evaluation of each officer's relative ability, regardless of human differences among raters. A tough assignment—yes; an impossible one—maybe.

I have done little more here than outline a problem which exists. Solving the problem must necessarily be left to those far more qualified in such matters.

But I do believe that the direction this effort must take is quite evident—a method for controlling the variable of the rating officer must be incorporated in the system. Such a task should not be impossible for a civilization which has placed objects into orbit around the earth, and even hit the moon.

# Contract Management — By Exception

*Early identification and rapid solution of problems are one of the most important keys to top-flight contract management. These are the techniques used by one Air Force office to insure potential headaches never develop . . .*

by Russ Wallace

Deputy Director

Contract Management & Procedures  
Aeronautical Systems Center

THE Management Techniques employed by any organization regardless of size are the key to how well that organization will run. In an organization that has management control of yearly programs totalling several billions of dollars, management must be constantly alert to take advantage of new techniques which will keep all levels of management informed of important aspects of programs progress or status.

Under these conditions, it is not surprising that management techniques generated at Air Materiel Command's Aeronautical Systems Center are ones which would appear to be valid—otherwise, we would not be able to use them. In our areas of operation, we feel the management tools we use are among the best, even though they may not apply in every situation.

One of our guiding philosophies is that the success of the Aeronautical Systems Center's procurement task demands constant vigilance at all levels—from the lowest procurement unit up to highest level of management. It is also recognized as essential that the Center be able to watch and monitor—day-to-day and from a central vantage point—the tremendous procurement task it faces.

Centralizing this monitoring job in a staff office permits objective continual analysis with minimum personnel. It also causes problems to be exposed as they occur, and gives management an early chance to correct the situation—stressing those matters demanding priority.

At ASC, this centralized watch-dog task belongs to the Contract Management and Procedures Division of the Directorate of Contract Support. Lt. Col. James H. Gardner, Chief of this Division, devotes most of his energies and attention to the task. Working with him in accomplishing this management function are a Deputy Chief of the Division, three Contract Negotiators and one Procurement Analyst.

Success of the monitoring function

depends largely on the ability of assigned personnel to evaluate each procurement situation and provide technical aid and guidance to procurement personnel. By careful assignment of well qualified personnel the monitoring function can be done by the few people indicated.

While new procurements by ASC each year total several billions of dollars, they by no means represent the total job. Besides these new procurements, there are many contracts carried from prior years on which repricing must be continually managed—both interim repricing on redeterminable type contracts and final settlements on redeterminable and incentive contracts. A great many additional actions are necessary to direct and make formal engineering changes on items previously ordered.

A primary area of concern to ASC and to higher authority within AMC and Air Force is the number of instances when late program releases, program changes and other factors force initial procurement by letter contract. The time needed to definitize these letter contracts causes equal concern.

## What is Involved

The management concept discussed here contemplates earliest possible identification of all procurement actions required during a set time period—fiscal quarter or fiscal year. Identification includes earliest possible assignment of a contract document number to each procurement action involved. After identifying procurements to be done and identifying associated contract document numbers, the next step involves setting up specific times for significant action milestones leading to completion of each programmed action. Under this over-all concept several management techniques are used. Individually they include the following:

**Control of Major Hi-Cost Procurements:** One of the most important

techniques employed at ASC is identifying and separately listing and handling a select number of the highest dollar-value contracts for weapon systems and equipment. The current list involves thirty contracts scheduled for completion during fiscal 1960.

These are the "Big Thirty." They represent contracts with estimated definitive values totalling \$1,950,000,000. The contracts are listed on three charts, ten to a chart, color coded to show the time allotted for negotiations, writing, review and other actions leading to completion.

Vigorous follow-up is maintained on these procurement actions. Twice weekly status of these procurements is reviewed with ASC Commander Maj. Gen. B. H. Warren, his Directors and top management by Col. James, Director of Contract Support. On the day before each review, Lt. Col. Gardner personally contacts responsible individuals at the buying level or other offices having a function for each contract involved. Col. Gardner then briefs Col. James on contract status, highlighting present or potential problems before he reviews the contracts with Gen. Warren and his staff.

This management technique allows the Commander and his top managers to know intimately the progress on the relatively few documents representing a substantial part of the total ASC dollar responsibilities. When contracts in the "Big Thirty" are completed, others are selected for the list.

**Electronic Data Processing Equipment (EDPE) in Contract Document Management:** Another technique used at ASC in managing procurement work is using mechanized equipment for contract document record, management and control. On February 15, a mechanized Contract Document Management System was implemented at ASC, covering all buying and contract support activities. The system provides control of selected documents through the procurement cycle, standardized reporting and reports, and, as a by-



## Putting the tools to work . . .

product, results in a mechanized Monthly Procurement Workload Report.

All management system operations were successfully service tested in a buying Division and a WSPO during December 1959 and January 1960, prior to full implementation. The Central Financial Services Division, Comptrollers Department, and Hq. AMC, collaborated with the Directorate of Contract Support, in setting up this mechanized system. Financial Services still supports the operation by furnishing machines and operators.

The mechanized system, with minimum input from buying personnel, will give management frequent and current data which should lead to continually improved procurement management within Aeronautical Systems Center.

**Document Control Lists:** As mentioned earlier, the ASC concept of management calls for earliest possible identification of contractual instruments to be processed in a given time period. These are identified in a single document control list. All contracts which obligate significant funds—us-

ually over \$100,000—are included. The responsible buying activity must forecast major actions leading to the completed procurement action, such as negotiation, contract writing, preliminary review, contract execution, revision and final review and distribution. Copies of the lists are available to all activities working on the given procurement action. These include, besides buying activities, Office of the Staff Judge Advocate, and the Instruments Writing Division, Contract Committee and Pricing Division of the Directorate of Contract Support, and the Procurement Committee at Hq. Air Materiel Command. The Document Control Lists provide a fairly accurate picture of anticipated workload, set a basis for priorities, and permit responsible personnel at all levels to be constantly aware of progress toward document completion objectives.

**Reporting:** In any business organization, some amount of formal reporting is needed to keep management apprised of progress in designated areas of interest. The same is true within the ASC. The Contract Management and Procedures Division has been made

Office of Primary Interest for the major procurement reports. Among the reports are the AMC Monthly Procurement Workload Report, the Monthly Report of Letter Contracts, Status of Outstanding Contract Change Notifications, and the Report of Price Redeterminations Workload and Delinquent Redeterminations.

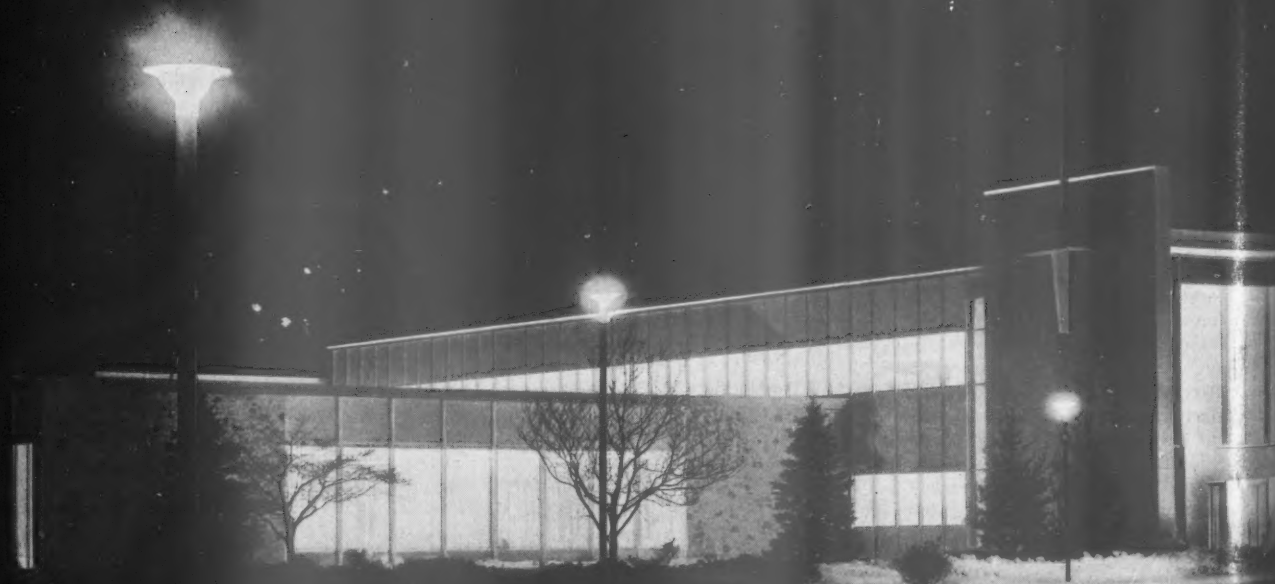
As in any other organization, it takes much work by individuals at the operational level to prepare or help prepare these reports. Time and effort devoted detracts from the time available for actual buying functions. To make this effort worthwhile, it is essential that reporting hold to a minimum consistent with management needs. It is equally essential that management make full use of information in the reports.

**Visual Displays:** It has been theorized that information in required reports is most effective if displayed as something more than cold, statistical dust gathering documents. Contract Management and Procedures Division takes full advantage of this idea. Wall charts graphically display all such data. The walls of Lt. Col. Gardner's office hold a wide variety of charts showing the status of all actions subject to management review.

A single procurement analysis chart

WHERE THE WORLD OF TOMORROW IS NOW

## NEW PHILCO COMPUTER CENTER



Reflecting the new ultra-modern manufacturing quarters for skilled technicians testing and producing the industry Computer Center demands of scale Data Processing Philco Computer

Computer engineering investigate the



has been designed to show the data from basic procurement reports. The chart is color coded to reflect overstandard conditions and problem areas. It is supported with other charts depicting numbers and trends in such areas as Purchase Requests, Letter Contracts, and Price Redeterminable Contracts with figures and color codes to show activity by month, total numbers on hand and numbers overstandard.

Another chart series lists outstanding letter contracts by procurement activity. These charts show amount obligated, estimated definitive value, forecast definitization date and significant milestones leading to definitization. Still another series reflect the number and other data relating to redeterminable contracts.

**Management Reviews:** In preceding paragraphs we explained in detail the charts and charting maintained in the Contract Management and Procedures Division. These charts, like reports, would have dubious value if used only for wall decorations. Impressing an occasional visitor likewise would not justify them. To be really worthwhile, they must ease the over-all management task.

At least once a month and more often if warranted, Weapon System

Project Office and Buying Division Chiefs, their Deputies, their Procurement Assistants or other top contracts personnel meet with the Chief of Contract Management and Procedures Division, to review all pertinent procurement matters.

Normally, separate reviews are held with each WSPO and Division. Generally, the Director of the WSPO or Division, his Deputy or other Directorate level representative sits in on the reviews. Every effort is made to hold down the length of these reviews, while allowing enough time to investigate and discuss each aspect of procurement involved.

During reviews, the status is ascertained for each contractual document on the Document Control List. If problems have developed or are anticipated, early correction is possible.

Each outstanding letter contract is similarly reviewed regardless of the forecasted definitization date. This provides maximum assurance of an appropriate commitment under DOD policy, and that all possible action is being taken to definitize within prescribed standards.

Number and age of outstanding Purchase Requests and Contract Change Notifications are discussed. Here, particular attention is paid to

overstandard and possible overstandard conditions. Also of special interest is status of redetermination actions on all contracts where it is due. Here again, these reviews are meant to stimulate responsible activities to timely steps toward required action within prescribed standards. Overstandard conditions are investigated to insure the earliest remedy.

Gen. Warren, recognizing the benefits in these management reviews, has stressed to his top managers the importance of their participation. Col. M. D. (Monty) Wilson, Deputy ASC Commander, makes frequent visits to the Office of the Chief, Contract Management and Procedures Division, where he scans charts maintained there. Col. James and his Deputy, James B. Leist, scan these charts or discuss some aspect pertaining thereto with Lt. Col. Gardner, his Deputy or other assigned personnel daily.

It is through such measures as these, and through the active participation of all ASC personnel, that Gen. Warren is able to monitor and control effectively the tremendous dollar volume for which he is responsible. Using the above management tools in implementing a sound management philosophy, ASC is able to do its best to obtain more defense for fewer dollars.


Reflecting the tremendous growth of Philco's computer business, this huge new ultra-modern plant is devoted exclusively to research, engineering, manufacturing and marketing of Philco Electronic Data Processing Systems. Comprising nearly a quarter-million square feet of floor space, it is headquarters for a staff of more than 1200 electronic scientists, engineers and skilled technicians. Fully-equipped with the most advanced research, testing and production facilities; manned by the leading scientific skills in the industry; it is the nation's outstanding computer plant. This new Computer Center will enable Philco to keep pace with the rapidly expanding demands of industry, government and science for the Philco 2000 Large-scale Data Processing System. You are cordially invited to visit the new Philco Computer Center and see the Philco 2000 in operation.

Computer engineers and scientists are invited to investigate the advancement opportunities at Philco.

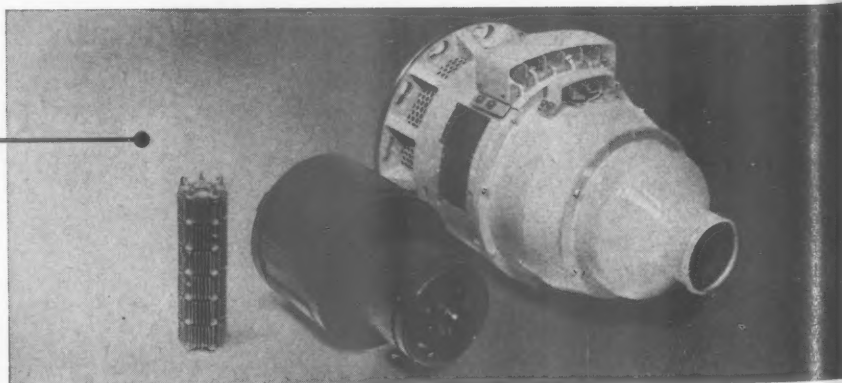
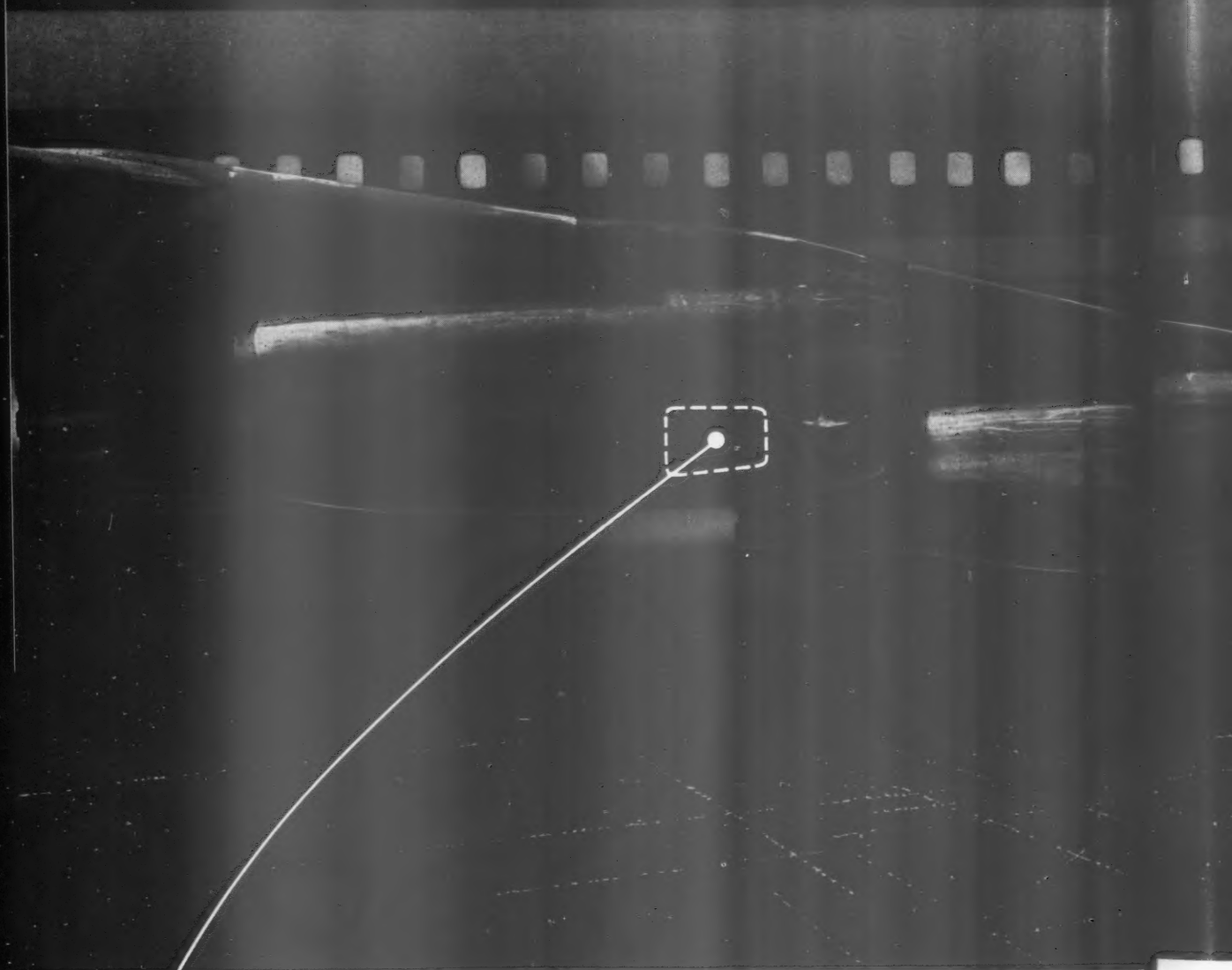


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**Wherever they fly**

## **Westinghouse Brushless Generators set amazing reliability records**

Wherever they fly—in giant 707 commercial jet airliners, in supersonic jet bombers or sleek, lightweight jet trainers—Westinghouse brushless generators and complete electrical systems are setting unmatched records of dependability.

For example: In one airline's fleet of 707s, Westinghouse 30 KVA brushless AC generators, at the end of 1959, had accumulated 2970 hours mean time between removal. This is 3 to 5 times better than the service given by ordinary brush type generators.

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Behind this remarkable, trouble-free generator performance is the advanced Westinghouse *brushless* design, which features a rectifier assembly of high-temperature silicon diodes instead of the usual brushes, commutator and slip rings.

Write for complete information on these brushless generators and equipment, and advanced new constant frequency devices now in development. A. L. Paquette, Marketing Manager, Aircraft Equipment Department, P. O. Box 989, Westinghouse Electric Corporation, Lima, Ohio.

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**PROVED IN SERVICE**—Westinghouse brushless AC generators are produced for commercial jet airliners, and military aircraft such as the coming Boeing B-52H, Convair B-58, North American A3J-1, and Northrop T-38. Sizes range

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J-02315





Building the Athena called for the development of new and rigorous quality control techniques to insure the reliability of its more than 100,000 components and 120,000 selectively soldered joints. All components were classified by Univac data processing equipment, which also kept permanent records of their performance.



Athena is the ground based guidance computer for the USAF Titan ICBM. The Athena continually computes the speed, elevation, direction, azimuth, and position of the Titan and compares this information with data stored in its magnetic memory. Responding to commands issued by the computer, the missile maintains a course which will put it on target.

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# Military Division

*Ultra-Reliable Athena Computer Guides ICBM Titan to Target 5,000 Miles Away*

Recently an ICBM Titan missile was fired from Cape Canaveral by the USAF Ballistic Missile Division. The accuracy of the ground-based guidance system was such that technicians were able to quickly recover a data capsule within a target area 5,000 miles away.

This same system made possible the highly successful launching of TIROS I, America's television-equipped weather-eye satellite. The Athena computer, guiding a three-stage Thor-Able type missile, put TIROS I into the most nearly perfect circular orbit of any satellite, Russian or American, yet launched.

The Athena Digital Guidance computer was designed and produced by Remington Rand Univac to meet unprecedented reliability requirements. Several Athena computers have since been delivered and have logged thousands of operating hours. All have exceeded a reliability rating of 99.992 per cent, a record considered as a major breakthrough in the computer art.

The Athena is now a proud addition to the distinguished series of defense systems developed by the Military Division. In exceeding the contract specifications for reliability and delivering the computer ahead of schedule, the Athena program once more demonstrated the outstanding military capabilities of Remington Rand Univac.



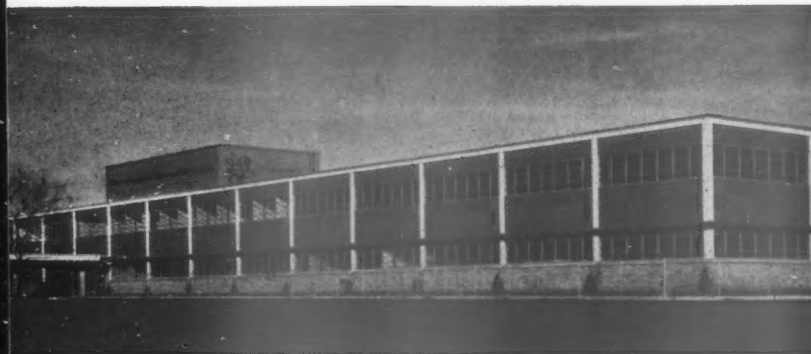
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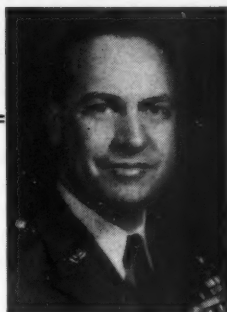


## Pentagon Profile

### This Month:

#### Brig. Gen. Clifford F. von Kann

Director of Army Aviation



IT IS PERHAPS symbolic of something that the many models of Army aircraft displayed in the office of Brigadier General Clifford Ferdinand von Kann are spread all over the room, rather than being gathered in one place. As Director of Army Aviation under the Deputy Chief of Staff for Operations, von Kann has to deal with problems, people and organizations that are just about as widely dispersed.

In a nutshell, von Kann works in what is an almost classic example of responsibility with no command authority. Which—at least judging by the excellent progress that Army aviation has made recently—is not as grim as it sounds.

Comments von Kann, "I won't say the situation is insoluble, but it's certainly challenging." Besides the usual lack of command authority that goes with any staff job, von Kann is faced with an entire set of problems that are unique to aviation in the Army.

These include in the forefront the basic organizational nature of Army's aviation program. Under the present set up, von Kann himself is just about the only officer in Army headquarters who is concerned wholly and undividedly with aviation. Just about anywhere that Army Aviation appears, it is something of a sidelight—a job to be sandwiched in between regular duties.

And because there is no central command office as such for this sort of work, Army aviation must draw on practically every other branch of the Army to get its entire job done. Personnel matters are handled by DCS/Pers, logistics by DCS/Log, research by the Chief of Army Research and Development, maintenance by the Transportation Corps. Says von Kann, "Each of these areas is the responsibility of somebody else. There has to be an Army Aviation program—it's a specialty that has to be nourished throughout the Army. But we have to do this without command authority, working on the staff side of it. Meetings, memos and coordination are about the most we can do."

However, von Kann says, "neither I

nor anyone else who understands the situation wants an Aviation Command as such. Personally, I feel it would be a tremendously unfortunate thing if Army aviation became highly centralized. The difference to bear in mind is that we—under the present organization—are integrated with, and generally responsive to the field units who can function best if they are able to command their own aviation."

On the face of it, the man who must sit on top of these problems is probably one of the least likely to have the job, in terms of apparent experience. In von Kann's words, "I can't honestly say that my entire career has been spent in direct preparation for this job. As a matter of fact, I didn't even play with model airplanes much when I was a child." It is perhaps noteworthy that von Kann's experience has been more with regular field commands, in that this is experience that brings knowledge of what is needed in the field to the front office.

The Director of Army Aviation sums up his previous career as being the "standard series of field artillery duties. I wasn't even helicopter rated until 1958, and my fixed wing rating came after that."

### Field to Front Office

Commissioned in the Regular Army under the Thomasen Act in 1938, von Kann's subsequent military duty was almost entirely on the ground—from North Africa to Sicily to Italy in World War II, and then to the General Staff of the then-War Department.

From the General Staff, von Kann went to Harvard Graduate School of Business Administration, returning to the Office of the Army Comptroller as Deputy Chief of the Management Division, and later as Assistant Comptroller for Plans and Policy.

Following an overseas tour, von Kann went to the 82d Airborne Division at Ft. Bragg, becoming a senior parachutist and getting his first real taste of airborne operations. "From there," he says, "it was pretty much a

matter of evolution to my present job. Airborne and aviation have a fairly natural affinity, and I suppose I was pretty well indoctrinated while I was there. Gen. Howze, incidentally, was Division Commander at the time."

On this same matter of indoctrination, Gen. von Kann points to one of the major areas for improvement. "Using tactical aviation, the Army field commander can accomplish things that that no one would have even thought possible ten years ago. It's the difference between Go and chess—you can move your troops just about anywhere on the board that you want to.

"The Russians today have bigger helicopters than we do, and there is absolutely no reason for our assuming that they aren't using them in a tactical sense to the fullest extent. We must use a little more initiative to bring the idea of tactical aviation into proper focus—so far this has been a matter of seepage and osmosis. You'd be surprised how many people in the Army still think aviation is some sort of administrative toy.

### Work Without Groundrules

"In our business, we don't want to limit tomorrow by yesterday's thinking. We don't really have any ground rules or traditions in Army aviation, and we're trying to sell this same newness to sections of the Army where the traditions do exist. I only wish there were more generally the same sort of feeling that we have at Fort Benning, for instance."

These are the problems: fragmented organization, lack of central command authority, selling the basic idea of Army Aviation itself. And of course permeating the entire area are the many technical problems which make themselves felt directly or indirectly.

In this light it is not surprising that Army aviation, in many areas must draw on other services for aid and advice. This is particularly true in the technical areas, and, of course in that the Air Force provides much of the combat support Army needs.

Along the same line, Army and the Marine Corps are working jointly on V/STOL developments. Says von Kann, "Although their entire aviation program is organic, we have many of the same basic needs."

It is by pulling together these many elements that Army has come as far as it has in aviation, and more of the same will be needed to continue progress in the future. Instrumental in this effort will be Brig. Gen. Clifford von Kann, Director of Army Aviation, and if the past is any indication, the job will continue to be done well.



## Research Rundown

**VARIATION ON THE "LOW AND SLOW" AIRCRAFT REQUIREMENT** theme oft reiterated by Army in general and Lt. Gen. Arthur Trudeau in particular was voiced at Project Man last month. Research Chief Trudeau told the Ft. Benning meeting that "we have an open mind on power plants," and that one major need was for silence of operation, to allow relatively undetectable battlefield flight.

**THREE-PIECE GROUND SUPPORT PACKAGE FOR THE PERSHING** long-range Redstone replacement is entirely mobile, can be mounted on standard tracked carriers or air transported, by helicopter or C-124. Pershing uses an inertial guidance described by one Martin engineer as "third generation V-2, by way of von Braun, and vastly improved."

**TIME TABLE ON NUCLEAR REACTOR BEING SET UP IN GREENLAND** by Army Engineers has been set—at least for the first phases. The reactor will be shipped to the northern post beginning in July, and should be ready for first tests by the first of September. Formerly impossible year-round studies in Arctic conditions should carry through next winter, if Army planning can follow its proposed schedule.

**MAJOR REASON FOR ARMY ENTHUSIASM OVER CARIBOU** is its ability to fill a previous gap between Army's largest aircraft and the Air Force's smallest in terms of payload. Question still to be answered: What happens when aging C-124's and C-118's begin to phase out of Air Force inventory. Medium size and general flexibility seem to preclude substitution with C-130's or other larger real or proposed cargo-type aircraft.

**BOOST FOR BETTER INTER-SERVICE COOPERATION** was one outgrowth of the recent Big Slam/Puerto Pine airlift maneuver. Theme running through the "lessons learned" portion of the final report underlines the need for greater, more effective joint planning on this type of operation. More pointedly: "A joint manual or publication with standardized terminology could have eliminated the time and expense of assembling operational personnel for briefings."

**ARMY BATTLEFIELD SURVEILLANCE NEEDS**—in terms of both potentialities and possibilities—are getting a thorough going over at this point. While Army has its eyes on jets for this purpose, low level work in this type of plane is "like flying through rocks," according to one officer, and will dictate much work on man/machine compatibility before anything definite can be done.

**THE MANY PROBLEMS FACED BY ARMY AVIATION** would seem to be compounded by lack of in-house facilities—if it weren't for the so-far high level of cooperation provided by other services. Air Force and Marine Corps are lending their talents—along with ONR—and the entire area is "by and large well-coordinated by Defense Department" according to Brig. Gen. C. F. von Kann, Director of Army Aviation.

**HIGH HOPES FOR GROUND-EFFECTS TYPE VEHICLES** are held by most of the people who are familiar with them, but not too many are looking for striking results soon. To date, loading and down-wash factors seem too unfavorable to supplant helicopters, called "best V/STOL craft we know under combat conditions" by von Kann. Point of reference: Chinook probably won't be replaced in Army's inventory until early 1970s.

**FOUR-IN-ONE EARTH MOVER IS UNDER TEST BY ARMY** at Combat Development Experimentation Center, Calif. The skid shovel-clamshell-scraper-bulldozer mounts a segment bucket that can be hydraulically positioned for any of the above jobs, is basically a tremendously versatile tractor.

## LAND IMPROVEMENT

### IN LANE COUNTY, OREGON

Along the Oregon coast, Lane County's D6 cuts a road to the ocean for a new recreation area near Florence. Lane County, stretching from the Cascades to the Pacific, depends on its D6 and 18 other Caterpillar-built machines to carry out road maintenance and construction programs. Multimillion-dollar road programs, new state parks... these are the things being done in Lane County. County Road Engineer H. O. Walberg commented on their Cat-built equipment: "We're well satisfied with our Cat equipment for two big reasons... big production and little down time. And when we need dealer service, it's there! The D6 is particularly useful to us. It's small enough to work in tight places, but big enough to tackle tough jobs."

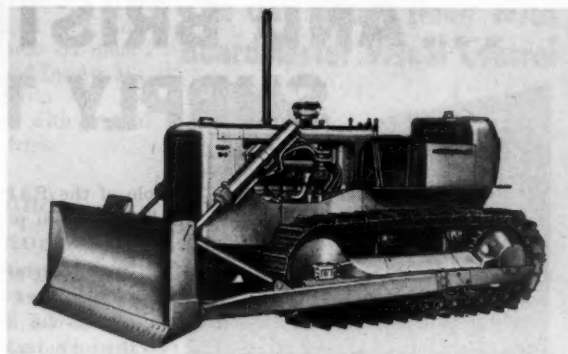


## MACHINE IMPROVEMENT

### BY CATERPILLAR

There's a new D6... the Series B... just introduced by Caterpillar. On the same jobs, on tougher jobs, this new work-styled D6B sets production peaks unheard of from a machine in its size class. It has more than just improvements... the all-new compact Caterpillar Diesel Engine, the D333, boosts lugging ability 25%. A new integral hydraulic system (optional) puts power where it's needed... at the tools. Center-pivoted cylinder mounting gives increased lift/drop range. Under-the-hood location of tank, pump and valves permits convenient routing of hydraulic lines to bulldozer or implement cylinders... frees the front and rear for working tools. The operator's cockpit is all new. Controls make the tractor handle almost as if it knew what was needed next.

The exclusive Caterpillar oil clutch is standard on the D6B. It provides up to 2,000 hours of adjustment-free operation. Lifetime lubricated rollers need no lubrication until rebuilding... help roll up more operating time instead of repairs. The dry-type air cleaner removes at least 99.8% of all dirt from intake air. Can be serviced



in five minutes. Cuts maintenance time by as much as 75%. Optional hydraulic track adjusters are another time saver. A grease gun is all that's needed to assure proper track adjustment.

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Bristol Siddeley Engines power the whole of the RAF's round-the-clock defence which shields Britain from possible air attack.

The defence system is made up of Bristol/Ferranti Bloodhound ground-to-air guided missiles, powered by two Bristol Siddeley Thor ramjets, and Gloster Javelin all-weather weapon carriers, powered by two Bristol Siddeley Sapphire turbojets.

These two types of weapon carrier complement each other, and their radii of action form a series of interlocking defensive cones which extend out from the coastline to an effective range of several hundred miles and far up into the stratosphere.

No known manned aircraft in service has a performance which would enable it to outclass or evade this round-the-clock defence.

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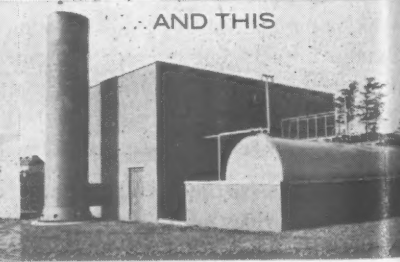
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**ARMED FORCES MANAGEMENT**



## Army Aviation Needs Detailed by von Kann

A requirement for pure jet aircraft in Army aviation may be dictated by battlefield surveillance needs, according to Brig Gen. C. F. von Kann, Director of Army Aviation. Such aircraft would be used for fast, low level, deep penetration missions in Army reconnaissance work.

In an interview with ARMED FORCES MANAGEMENT, von Kann also cited the following areas in which Army has heavy interest: (1) quieter aircraft engines to reduce detectability, (2) all-weather navigation capability for Army planes, preferably of an un-jammable inertial type, and (3) improved avionics equipment.

However, von Kann said, before any of the above needs could be fulfilled, the necessary equipment would have to be simple and rugged enough to "live in the field."

For the future, von Kann said the Caribou tactical transport and the Chinook cargo helicopter would probably remain in Army's inventory for some time. "It will probably be the early 1970's before we have a suitable replacement for these," he said.

Commenting on the so-called 5,000-lb. payload limit on Army aircraft, von Kann said "We don't consider this flat limitation as such, but rather a means of letting the Secretary of Defense sign off on such purchases. In the future, I see no need for fixed-wing aircraft—except trainers—below this limit."

## New Uses Planned For Navy SeaCopter

Experiments which will broaden the use of sea-going helicopters and make them more stable in the water are planned by Bureau of Naval Weapons.

This fall, first tests will be run using the SeaCopter in air-sea rescue operations. Aim is to provide a "personal" touch, as opposed to present grappling techniques.

In further SeaCopter studies, Navy is looking into different buoying systems which may greatly improve sea-going characteristics of the helicopters.

Specifically, Navy is working with a tilt float technique which will put the helicopters down resting on four vertical spar buoys. By arranging the floats in this manner, a model HSS-2 swayed only 2°-3° in simulated 8-12 ft. waves.

Besides air/sea rescue operations,

such a helicopter would have application in ASW work, and would conceivably save the Navy considerable money. On sonar dipping operations, to put the helicopters down on the water would effect 70% fuel savings as opposed to hovering.

## Air Force Tests Rail-born Minuteman

A series of six tests studying use of civilian rail facilities for carrying Minuteman intercontinental ballistic missiles will be run by Air Force from June to November in the mid- and far western United States.

First test begins June 20, with Strategic Air Command, other commands and officials of more than 13 railroads checking out a test train moving over rail networks for about seven days.

Program will test mobility, control and communications operations, and first trains will carry no missile hardware. Using such trains, trajectory computations would be set in advance, allowing vastly increased mobility for SAC's retaliatory force.

Test train will have about 14 cars, including a command and control car. Crew will include about 21 men. Supplies and support for these six month programs will be furnished by Air Materiel Command. Each trip will last from seven to 14 days, with several days' interval between trips.

## Some Bomarc Funds Set For Interceptors

Part of the funds made available by eliminating Bomarc B from the Air Force shopping list will be diverted for further modernizations of interceptor planes, according to Maj. Gen. Howell M. Estes, Jr., Assistant Deputy Chief of Staff for Operations.

Estes told the House Government Operations Subcommittee that the F-101s, F-102s and F-106s must as far as possible "fill the void created by our decreased Bomarc program."

Specifically, Estes said the planned modifications would improve performance of the aircraft in electronic countermeasures environments by adding more advanced fire control equipment and improving armament.

He said the program to develop a new fire control system and an advanced missile for interceptors will continue "on a modest basis as an insurance policy against the possibility of an increased bomber threat in the future."

## New Zeus Configuration Set For Flight Test

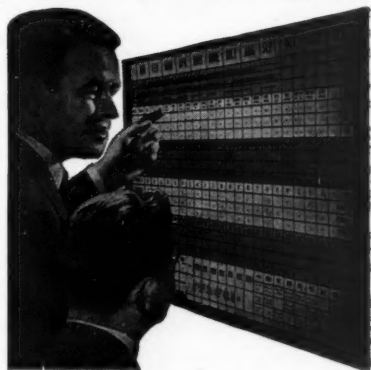
A new, cleaner configuration of Army's Nike-Zeus air defense missile will undergo first flight tests this summer, according to Donald Douglas, Jr., president of Douglas Aircraft Company.

The new version of the missile has reduced movable fins on the third stage, with built-in vernier rockets. The new missile, which will operate in the fringes of space, is boosted by a Thiokol rocket developing 450,000 lbs. of thrust.

It is approximately 65 ft. long and totals three stages. According to Lt. Gen. Arthur Trudeau, Army R&D chief, the job is not to "shoot down a bullet with a bullet," but "like obstructing a speeding train coming down a fixed track."

BMEWS, or the missile's own supporting radar system, can determine incoming IC-or IRBM trajectory in time to launch for the kill, Trudeau said. He added there is no indication that

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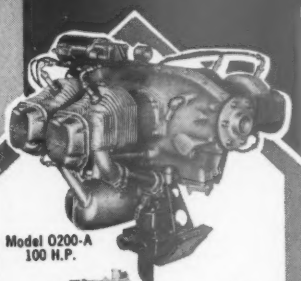
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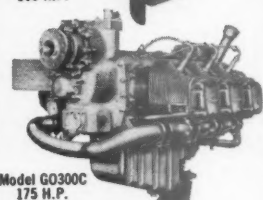
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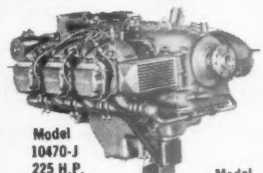
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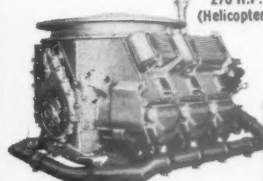


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C90.....	95	2625	4	207	80/87
O200-A.....	100	2750	4	190	80/87
O300-A B & C.....	145	2700	6	277	80/87
G0300-C.....	175	3200	6	312	80/87
O470-15***.....	213	2600	6	405	80/87
E225.....	225	2650	6	363	80/87
O470-K & L.....	230	2600	6	404	80/87
O470-M.....	240	2600	6	409	91/96
O470-G.....	240	2600	6	432	91/96
O470-H*.....	240	2600	6	472	91/96
I0470-C.....	250	2600	6	432	91/96
I0470-D.....	260	2625	6	426	100/115
I0470-F.....	260	2625	6	426	100/130
I0470-J.....	225	2600	6	402	80/87
I0470-K.....	225	2600	6	391	100/130
FSO526-A**.....	270	3200	6	575	91/96
GSO526-A.....	340	3100	6	549	91/96

\*Pusher Type engine with extended propeller shaft  
\*\*Helicopter engine \*\*\*For Military use



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AIRCRAFT ENGINE DIVISION  
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Soviet missiles can change direction after launching.

Also in connection with the Zeus program, Raytheon is working to develop a twin radar setup which will both spot the incoming missile, and differentiate between warhead and decoys. To do this, the Raytheon radars will have to sort out the actual warhead from a great deal of "garbage" that may be generated by fragmentation effects from the incoming missile.

## Army Radar System Offers Breakthrough

Army has unveiled a side-looking airborne radar system which outperforms the human eye in separating objects at great distances. The system is called "an important step in providing an improved combat intelligence system for the field army."

With the new radar, distant objects do not merge together, but rather are separated, thereby overcoming this problem which exists both with the human eye and with previous radar.

Producing map-like photos for intelligence study, the AN/UPD-1 is not subject to distortion due to distance. It is a day and night, all-weather system, and operates with L-23 aircraft and a mobile ground van. Developed by University of Michigan's Willow Run Laboratories and Army Signal Corps, the radar is engineered and built by Texas Instruments, Inc.

## Transit II Launching Brings Missile Firsts

Three significant firsts were achieved by a recently launched Thor Able Star, fired from Cape Canaveral.

Achieved by the missile were: (1) Longest burning time of any U.S. propulsion stage; (2) An attitude controlled coast period of almost 20 minutes; and (3) High altitude engine restart for orbital injection.

Ground command for satellite restart came from AFBMD/STL mobile tracking station at Erding, Germany. After the second burn, the payload was spun up to about 130 rpm by means of a pneumatically actuated spin mechanism and then explosively separated 12 seconds later.

## Dyna-Soar Study Ends; Development Funds Freed

Technical review of Dyna-Soar development program has been completed and contractors will now start design and ground testing needed to build the boost-glide aerospace test vehicle.

Fiscal 1959 and 1960 Air Force funds totaling \$29.7-million will be released.

ARMED FORCES MANAGEMENT

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leased. So far, \$3.5-million has been expended. In fiscal 1961, an added \$53-million will be spent.

Design work will be managed by management and engineering personnel of Air Research and Development Command and Air Materiel Command at Wright-Patterson Air Force Base, Ohio.

Dyna-Soar is a piloted, heat-resistant aircraft which will be boosted to near orbital speeds by a modified Titan missile. Later flights will reach orbital speeds. Prime contractors on the program are Boeing Airplane Co. and The Martin Co.

## Industry Developments

### Electronic Jammer Kills Artillery Shells

A series of artillery shells were exploded in flight automatically by a compact mobile electronic countermeasures set produced for Army by Sylvania Electric Products, Inc. at Fort Benning's recent Project MAN.

This marked the first public showing of the AN/MLQ-8, an evaluation model of the countermeasures set. Premature detonation of the shells would protect foot soldiers from enemy fire.

Mounted on a standard Army jeep and trailer, the device weighs less than 500 pounds, and is easily transported by military units.

It can be put into automatic operation quickly in almost any battlefield situation. Once turned on, the device operates unattended.

Specifically, the AN/MLQ-8 serves to detonate radio-operated fusing on VT artillery shells. It is most useful against intended air burst fire.

### Mauler Computer Built By Burroughs

Burroughs Corporation will develop an electronic computer system for Mauler, a highly mobile battlefield air defense system being developed for Army by Convair/Pomona.

Research and development work under the initial contract will be done at Burroughs Research Center. The award raises appreciably the production potential of the firm's Military Electronic Computer Division, according to Burroughs.

When completed, the computers will be air- and helicopter-transportable and air-droppable. Each unit will be contained entirely in a single vehicle, and will be designed to deliver accurate fire even while moving over rough terrain.

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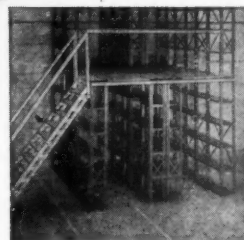
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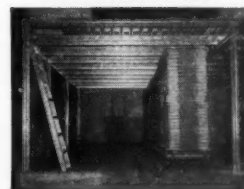
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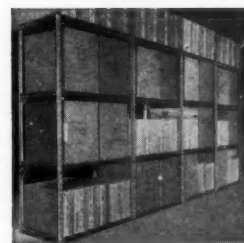
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## Procurement Trends

**EXPANDED SINGLE MANAGEMENT RESPONSIBILITIES** still look good to Defense, with specific programs continually in the works. Next most likely area for this method of doing business is in automotive and construction equipment supplies. Coding of such equipment is in process, with a year-end deadline. Most likely candidate for the job is the Army's Corps of Engineers.

**THOROUGH RE-WRITE OF CROSS SERVICE BUYING DIRECTIVE** should be completed by year-end, will result in much greater authority for the buying agent. Specifically, recommendations aimed at standardization will be part of the buying job, other changes should offer greater procurement efficiency.

**ONE DISADVANTAGE OF HEAVY EQUIPMENT MOUNTED ON** low-pressure tires turned up as a result of Big Slam/Puerto Pine exercise, this being their tendency to work loose from lashings in aircraft flying through turbulence. Fault is more significant in the light of air-transportability being stressed by both Army and Marines, the major users of such equipment.

**MINOR MODIFICATIONS ON TWO OF ARMY'S AIRPLANES** seem most likely for the fairly near future. An Army evaluation board has recommended that off-the-shelf reversible props be bought for the Caribou, further shortening landing distances required. Also, one Army source comments "it would be unrealistic for us to send out an airplane like the AO-1 on a reconnaissance mission with no armament." Possible remedies for this would be either 7.62 mm machine guns or light, cheap rockets.

**COMPUTERS USED FOR PLANNING, MANAGEMENT AND REPORTING** in connection with Big Slam/Puerto Pines exercises more than proved their worth, pointed the way to reduced planning and reaction times throughout the lift. ADPS equipment was used "to an unprecedented degree" in the exercise, did much to promote "optimum efficiency" throughout.

**ONE OTHER "LESSON LEARNED" IN THE PUERTO RICO LIFT** was the need for a better method of getting airplanes loaded in a hurry. "A more rapid loading winch" was cited specifically as one possibility. In spite of this, turn-around times during the exercise were consistently less than had been allowed. One other drawback encountered: MATS' inventory of refuelling units is inadequate for off-route mobility.

**AN OVERHAUL OF ARMY'S DEPOT SYSTEM IS IN THE WORKS**, aiming for a "hard core depot system within the continental U. S." Budgeted for \$10-million under the proposed Army budget, the changes will involve repositioning some of Army's present stocks. Working toward an optimum of three supply areas, the basic goal is to keep from having "all of our eggs in one basket."

**MORE NEWS FROM THE ARMY SUPPLY SYSTEM HAS** near-total electronic data processing as an eventual goal. Built around IBM equipment, the system would eventually hinge around a nation-wide transceiver net. Farther down the road, the transceiver net would extend overseas. As a safety measure, the completed system could be operated manually as well as electronically.

**"GO WITH WHAT YOU'VE GOT" PHILOSOPHY** regarding mobilization stocks is being followed to an extent in Navy, which has "reduced our planning factors for mobilization stocks in general." For the first half of 1960, stock drawdown totaled \$24-million in book value for the Navy.



## Unified Communications Established by Gates

In a major step towards service unification, Defense Secretary Thomas Gates has combined all but basic tactical military communications under one mammoth world-wide system.

The new arrangement is spelled out in two directives. To be under the Joint Chiefs of Staff, the new agency will be headed by a flag-rank officer who will set up his own headquarters and staff.

Heart of the system will be a fully automated communications center providing linkage throughout the world. System became operational with dedication of an automatic communications relay center at Siegelbach, Germany.

The system is designed to be fully compatible with similar systems of Army and Navy. This means messages from all three services can be automatically processed by the Air Force switching centers.

The system cost about \$2.1-million. Others are located in Hawaii, Japan, England, Spain. Processing rates over the five million miles of network are 100 words per minute in the switching centers.

## Incentive Contract Termed Cost Saver

Air Force has defended its use of incentive contracting as a cost saver for the government. The statement was made by Air Force Secretary Philip Taylor and Maj. Gen. W. A. Davis, AMC Procurement Director, defending charges that defense contractors usually get the best end of the bargain in negotiating incentive target prices.

Charges were levelled by Rep. Carl Vinson, who also requested that Air Force supply for the record all contracts in which manufacturers were above or below target prices and the percentage of extra profit earned.

Vinson said Air Force is "at the mercy of hard bargainers" because it must have the products it buys. Without competition, Vinson continued, the Air Force must accede to contractor prices.

Taylor and Davis disagreed, stating that eventual target price on incentive contracts is usually between the low Air Force figure and the higher contractor estimate. The dis-

cussion was sparked when Taylor said Air Force has urged increased incentive contracting in proper circumstances.

He outlined for the subcommittee details of what he said was "an extensive and determined campaign to improve proficiency" of Air Force contracting. Air Force said average sales profit reported to the Renegotiation Board was 4% in 1959.

While Gen. Davis conceded that incentive contracts seem to be going mainly to contractors using government facilities before 1955, he said the last five years would show another picture. This was in response to a Vinson criticism that incentive contracts were used mostly where government equipment existed.

## Financing Overhaul Recommended by GAO

General Accounting Office has urged Defense Department to consider eliminating a policy under which defense contractors must obtain private financ-

ing for 20% of pre-delivery costs under certain cost-reimbursement contracts.

Reporting to Congress, GAO said the three-year-old directive has cost the government \$8.7-million more than if the military itself had directly financed costs on 25 examined Air Force contracts.

The GAO recommendation is the second appeal to Defense to drop the practice where increased costs were likely to develop. In reply to the first recommendation Deputy Defense Secretary James Douglas said that "after a full review and thorough reconsideration . . . we cannot agree with your conclusions or recommendations."

Controversy stems from DOD Directive 7800.6 which generally limits government reimbursements to 80% of contract costs. Aim of the directive was to bail the Pentagon out of financial trouble caused an Administration budget ceiling in 1957.

GAO said that "the effect of this temporary relief vanishes as soon as the government is required to reimburse contractors for amounts previously withheld. Although payment by

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the government of a portion of contractors' current costs is deferred, after the initial period the net amount of the annual cash disbursements required of the government will be substantially the same as that required before the directive was issued, and, furthermore the government will incur increased costs for the additional fees paid to its contractors."

GAO said it had been unable to audit Army and Navy contracts for additional fees, but "the records indicate that application of this policy to such contracts has resulted in increased costs without any significant benefit to the government."

An Army audit report on missiles states "The 80/20 clause has definitely resulted in increased costs . . . since the government can borrow funds at rates lower than contractors can, the effect of the 80/20 clause can only result in higher net cost to the government . . ."

## Navy Land Disposal Exceeds Acquisition

For the first time since the Korean conflict, Navy is disposing of more land than it is buying.

"In the foreseeable future the land disposal program is expected to continue at its present pace while at the same time acquisition will remain at a minimum," according to Rear Admiral

E. J. Peltier, Chief of the Bureau of Yards and Docks.

From July 1, 1959 to March 31, 1960, Admiral Peltier's bureau disposed of 89 projects totalling 93,272 acres, representing an investment of some \$371-million.

For the same period 20 acquisition projects totalled 86,079 acres costing \$2.3-million. There were no acquisitions for new major activities.

Peltier said "land and facilities declared excess will eventually be used in local economies, and for the most part be returned to the local tax rolls." Before property is offered for sale to private parties it is screened by General Services Administration through other agencies for possible local community activities such as schools, hospitals, needed recreation areas, civil aviation projects or other public works.

## Air Force, Convair Hit By GAO in Senate Group

Air Force and Convair have been criticized for not adopting existing equipment for ground support of the B-58 tactical weapon program, resulting in \$2.6-million in excess costs to the government.

GAO told the Senate Small Business Procurement Subcommittee "Convair decided, under its authority as B-58 weapon system manager, to develop special air conditioning carts of its

own design for ground support of the B-58 tactical program." GAO charged Convair/Fort Worth had bought similar air conditioning units for ground support of the B-58.

GAO also said the award to Convair's San Diego plant was a cost-and-incurred basis "without inviting competition from established outside manufacturers of similar equipment." "This action, GAO said, was taken despite the fact that Convair lacks previous experience in the development and fabrication of ground support air conditioning equipment."

The subcommittee deplored the action as it "virtually condones elimination of small but expert component manufacturers, while permitting the payment of blue-ribbon, premium prices to prime contractors for work they are not qualified to perform."

Convair said other units were inadequate to meet the specifications set for the ground air conditioning units. The company also justified its actions in that time was too short to go through lengthy bidding procedures. Air Force approved the actions on substantially these grounds.

## Plant Differential Hit By Michigan Lawmaker

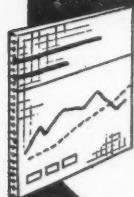
A rider to the fiscal 1961 defense money bill to halt payments of "differentials" to contractors performing work in privately-owned plants has been proposed by Rep. James G. O'Hara (D-Mich.) to the House Appropriations Committee. Such payments, O'Hara said, may otherwise result from a September 1959 Budget Bureau directive (Bulletin 60-2).

Budget Bureau directed that before government agencies award a contract to firms offering to use a government facility, these costs must be added to the bid: (1) a figure equal to plant depreciation; (2) a figure equal to interest on government's total investment in the facility; (3) equivalent insurance costs; and (4) the amount of state, local and federal taxes that would be paid if the government had to pay such taxes.

O'Hara said "government-owned-contractor-operated facilities do not lend themselves to the application of this policy in favor of private enterprise." He said costs of maintaining government facilities are higher when they are idle, and this policy is likely to discourage use of government plants and equipment with the eventual result of "great increase" in procurement costs.

Budget Bureau said the directive was in general accord with Administration policy to discourage commercial-industrial activity by the government.

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**ARMED FORCES MANAGEMENT**



# Newsletter

Armed Forces Management Association

Washington 25, D.C. Phone: OTis 4-7193

National President: Hon. George H. Roderick

Exec. Vice Pres.: VAdm. Harry E. Sears, USN, ret.

## NATIONAL OFFICERS ELECTED

At the annual business meeting held on 19 April as a part of the Association's National Conference, the following officers were elected for the fiscal year commencing 1 June: Chairman and President, the Honorable George H. Roderick (re-elected); to the Board of Directors: Vice Admiral E. W. Clepton, Maj. General R. W. Ward, USA, Brig. General T. J. Gent, USAF, E. D. Dwyer, Colonel J. L. Tarr, USAF, E. E. Sweezy.

Remaining in office for the coming year will be: Vice Chairman and Vice President: Lieut. General R. C. Wilson, USAF; Vice President, Plans: Howard Hyde; Programs: Maj. General Chester R. Allen, USMC; Chapters: Colonel Tarr; Publications: Mr. Sweezy. Vice Admiral H. E. Sears will continue as the Association's full time Executive Vice President. Vice President, National Conference will be appointed when plans for the '61 meeting are further advanced. John F. Snyder and Irving M. Greenberg will continue as National Treasurer and Secretary, respectively. Advisory Council chairmen will include: Industry, T. A. Callaghan; Education, Vice Admiral O. S. Colclough; Editorial, Lieut. General A. G. Trudeau.

## CHAPTER WORKSHOP REPORT

An important addition to this year's national conference was the addition of a half day session of chapter workshops. Drawn from all chapter representatives in attendance, five groups addressed themselves to the areas of: Chapter Growth; Meetings; Projects and Special Activities; Administration; and Publicity, Public Relations and Command Support. A report of these workshops is being made available to all chapters, and also will be included in the next issue of the AFMA JOURNAL, which will be devoted entirely to the conference proceedings. Highlights of the report:

**Growth.** Liaison with other local management groups; cultivate command interest and support; periodic membership drives by organization and geographic segments; each member secure one new member annually; have membership blanks available at all meetings.

**Meetings.** Select optimum meeting time for all concerned; secure outstanding speakers; include some social events; awards for outstanding service; vary the menu and meeting place; include broad range of topics for meetings; seasonal speakers; encourage visitors; secure proper publicity; telephone committee for last minute reminding; occasional round table or panel discussions, and brainstorming sessions.

**Projects and Special Activities.** Industrial visits; educational trips; study groups; workshop projects. Field trips for small groups can be planned to advantage, with report-back to chapter as a whole. Local projects can include revision of forms and publications, staff studies, study group. Goal: the completion of at least one local project per year.

**Chapter Administration.** Occasional report to keep membership and installation commander informed; specialized

reports of field trips; project reports; committee chairmen reports to the membership; reports should be concise, to the point and a minimum to meet chapter needs. Other points: nominating procedure should be over several meetings; all members should receive a ballot and be encouraged to vote; every member should be assigned to a committee; utilize standing and "as needed" committees; lay stress on program committee and its chairman, the heart of successful chapter operations.

**Publicity.** Command support essential; personal contacts necessary in membership promotion; know AFMA aims and objectives; utilize bulletin boards and displays; utilize news media, trade publications, AFM magazine, home town releases, and personal contacts.

**NOTE:** The AFMA Chapter Manual contains much in line with the above suggestions. Constant reference to this guide should be made to insure a worthwhile and meaningful chapter program.

## CHAPTER BRIEFS

**National Capital Chapter** held its annual meeting at Bolling AFB on 17 May. The evening included a hospitality hour, dinner and entertainment. A report of the National Conference held in Atlanta 19-21 April was made by the Association's Executive Vice President, Vice Admiral Harry E. Sears. Principal speaker at the banquet was AFMA President, the Honorable George H. Roderick whose subject was, "The Functions of the Manager." Present at the meeting were military and civilian personnel from all services, and representatives from industry and education. Officiating was the chapter's outgoing president, Tom Kouzes, who will be relieved on 1 July by Capt. Frank P. Brown, USN, of the Navy Management Office.

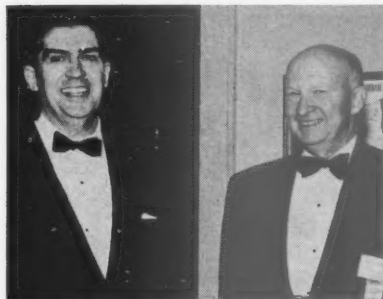
**Western New England Chapter**, located at Westover AFB, Mass. was formally chartered on 2 May at a dinner meeting on the base. Presenting the charter was the Association's Executive Vice President, Vice Admiral Harry E. Sears, USN Ret. who then addressed the group, which included many businessmen and educators from nearby communities, on the purpose of AFMA and its program, progress and future plans. Accepting the charter was the toastmaster for the occasion and acting chapter chairman, Colonel Orland G. Huffman, Material Officer of the 57th Air Division.

**Eielson Executive Club Chapter** held its first formal meeting on 26 April at Eielson AFB. Guest speaker for the occasion was the Commissioner of Education for Alaska, Dr. Norby, who was introduced by Capt. Robert Falkner.

**Mohawk Chapter** has elected as its president for the coming year, Edward W. Kelley, who succeeds Mrs. Alice Lee MacHarg.

**Bibliography.** American Management Association's catalog *Management Bookshelf*. Also, *Classics in Management*. Direct inquiries to AMA, 1515 Broadway, New York 36. Chapter meeting attendance will be considerably enhanced by phoning all members on the day of the event. Form a phoning committee today—it will pay dividends!

## AFMA Conference Highlights



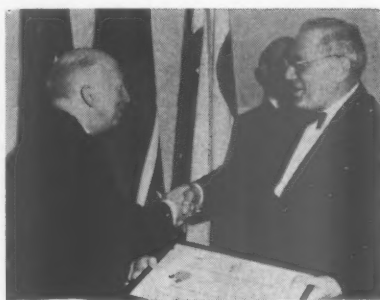
AFMA President Hon. G. H. Roderick and Hon. F. B. Lincoln compare notes prior to Awards Banquet.



AFMA Achievement Award is presented by AFMA President Roderick to Vice President Col. W. C. Howell.



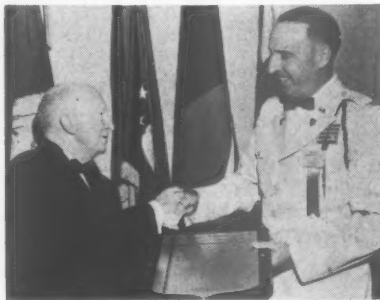
Robert F. Steadman accepts AFMA Service Award for member organization on behalf of American Management Association.



Non-member service award went to National Defense Transportation Association. Accepting is NDTA Exec. V. P. Col. F. W. Cray, USA (ret.).



J. Lewis Powell accepts AFMA Literary Award for "outstanding literary contribution" to AFMA work.



Col. Robert H. Shell, accepts the coveted outstanding Chapter Plaque for his prize-winning Atlanta chapter.



Honorary Life Membership Award is presented to Col. James L. Tarr for outstanding contribution as AFMA National Vice President (Chapters).



Army Management School provided one on many conference exhibits at a display held in the Atlanta-Biltmore Hotel. Both government and industry were well represented.

## Defense Comptroller Reviews Progress

In his first public address since taking office as Assistant Secretary of Defense (Comptroller), the Honorable Franklin B. Lincoln, Jr. as principal speaker at the Annual Awards Banquet of the Armed Forces Management Association, left some interesting and refreshing thoughts with the conferees in attendance at this highlight of their national conference.

Stressing the importance of leadership in defense management, the Secretary stated, "No doubt the existing organization could be improved upon further, but as James Forrestal pointed out on numerous occasions, organization cannot substitute for leadership. The problem is to make the existing organization work, and work well." Stressing the importance of people in organizations he went on to observe, "... it should be remembered that organizations do not manage. People manage! And, in an organization as large, as varied, and as widely dispersed as the Defense Department, large numbers of managers of different skills and specialties are needed throughout the management structure.

"Coordinating the efforts of these specialists constitutes one of the important contributions of top management. As Secretary Forrestal pointed out, while there is a need for professional specialists in government as well as in industry, 'there still remains that imponderable element which provides the synthesis for all the specialties, namely, management, which is the ability to handle people, to select leaders, and to exercise judgement'."

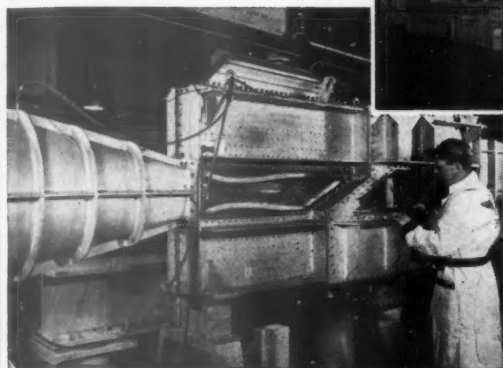
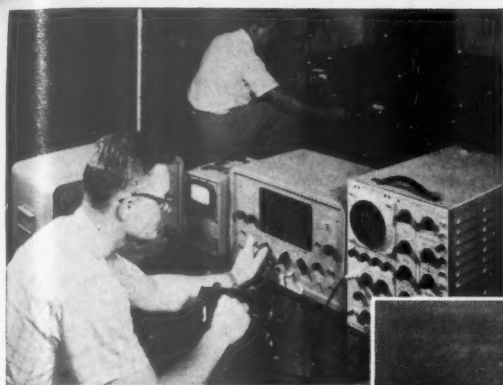
## Secretary Gates Receives Top AFMA Award

Secretary of Defense, the Honorable Thomas S. Gates, Jr., was the recipient of the National Merit Award of the Armed Forces Management Association on the occasion of its Annual Awards Banquet held in Atlanta on April 20. In his letter accepting the award and expressing his appreciation for the honor, the Defense Secretary stated, "... I am mindful that whatever progress we have in management throughout the Armed Forces of the United States has been due to the efforts of those in positions of responsibility at all levels of command.

"There is a tendency to think of management in terms of the top level only. This is a common error which I believe the Armed Forces Management Association is helping to correct..."

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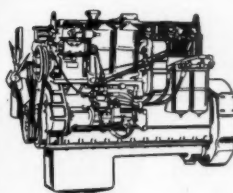
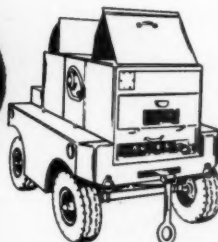
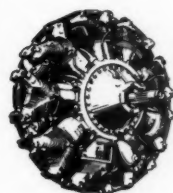
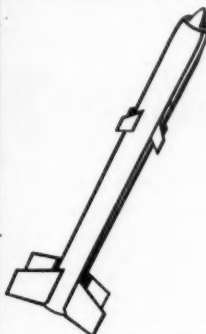
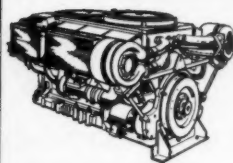
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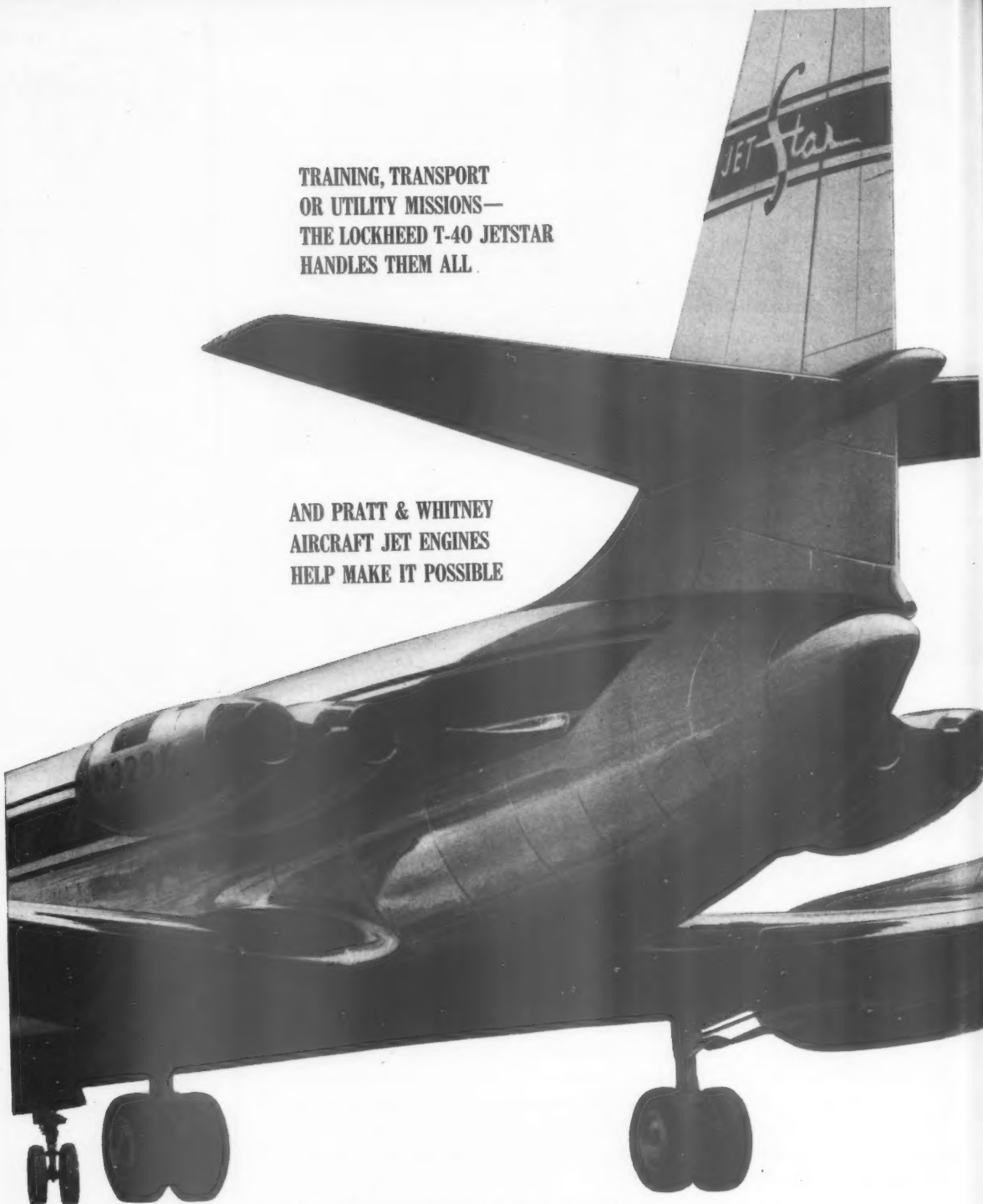
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## INSIDE THE STOP ORDER

A hunting knife honed down to razor sharpness is a useful tool unless a person wants to whittle on a steel bar. In other words, it's a handy tool but has certain limitations.

That same simple logic applies to the Stop Order. The investor who knows just what the Stop Order can do for him, and what it *can't* do, has at his disposal an effective device to try to protect part of a profit or to limit a loss. The investor who doesn't realize the limitations of the Stop Order is likely to wind up confused, disappointed, angry not only with himself but with his broker as well.

Stop Orders were introduced in the Stock Exchange more than half a century ago with the main purpose of trying to limit a loss. For many years they were known as Stop-Loss Orders. This term has been abandoned, however, because of the misleading implication that protection against loss could be guaranteed. Sad to say, it can't.

A Stop Order becomes a Market Order when a stock sells at or through the stop price. So the best way to inspect the Stop Order is to gain a little perspective by first seeing how it functions on the floor of the Stock Exchange.

A year or so ago, for example, you bought 100 shares of XYZ stock at \$40 a share. Since then the price has advanced to around \$55. You and the family are planning a trip and, if possible, you'd like to protect part of your paper profit in case the market turns down.

Under the circumstances you tell your broker to sell your 100 shares of XYZ at 50 stop, good until cancelled. If your order should be executed at that price, of course, you'd be left with a profit of \$10 a share. Even so, there is no guarantee that you will get that price even though the market declines low enough to put your Stop Order into effect.

Your Stop Order immediately goes to the trading floor. The Exchange member who acts as your agent on the floor can't wait indefinitely at the trading post where XYZ is bought and sold. After all, the price may never decline to \$50 a share. So your order is given to a Specialist who, in this case, acts as a broker's broker.

The Specialist enters your order in a book which contains orders of other investors to buy or sell XYZ at different prices. While you're away XYZ starts to decline. Eventually sales take place at  $50\frac{3}{8}$ ,  $50\frac{1}{4}$ , finally 50. When a sale takes place at 50, your Stop Order automatically becomes a Market Order—and is handled just like any other.

The Specialist, who acts for you just as your own broker would, will try to get the best possible price. He may be able to sell your 100 shares at \$50, or he may have to take a lower price. He may, after the market touches \$50, even be able to get a price above that.

In case of a price decline, the best price he could get might be, say, \$49, which isn't the price protection you wanted but it still leaves you with a handsome profit. A price of \$49 would look even prettier, of course, if you returned from your trip and found XYZ had tumbled all the way to \$40, the price you originally paid.

The Stop Order thus helps you protect a profit. But it does something more than that, too. It may also be used to limit a loss.

If you pay \$50 a share for 100 shares of XYZ, for example, you realize that the price may well decline. On the eve of your holiday you enter an order to sell 100 shares of XYZ at \$45 stop on the theory that if XYZ falls, it might go as low or lower than that—a risk you'd rather not assume.

If XYZ advances, all's well. But if it does fall to \$45 or lower, your Stop Order immediately becomes a Market Order and you have limited your loss to \$5 a share or perhaps more, depending on the exact price at which the Specialist is able to sell the stock.

Quite plainly, the Stop Order can be viewed as simply another procedure developed to assist the nation's investors. But like any complex technique, the Stop Order must be used both wisely and well, and the investor must appreciate both its limitations and its advantages.



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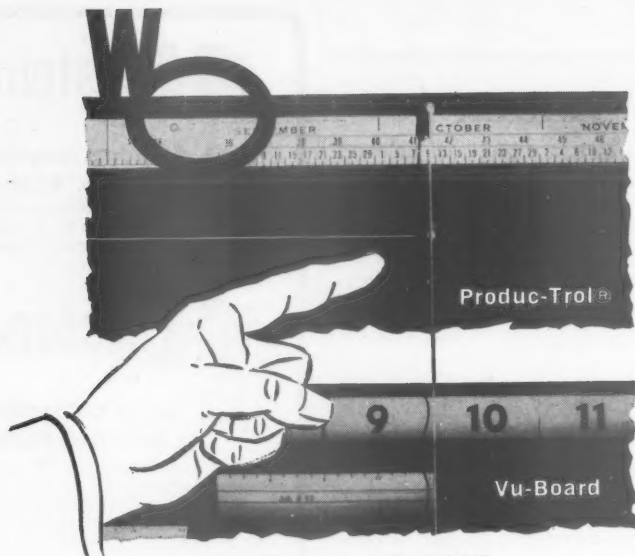
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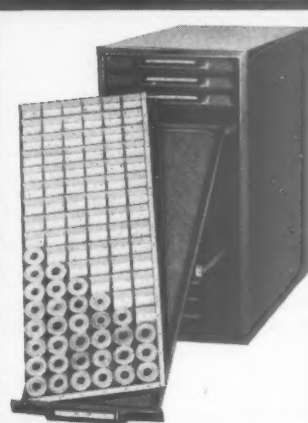
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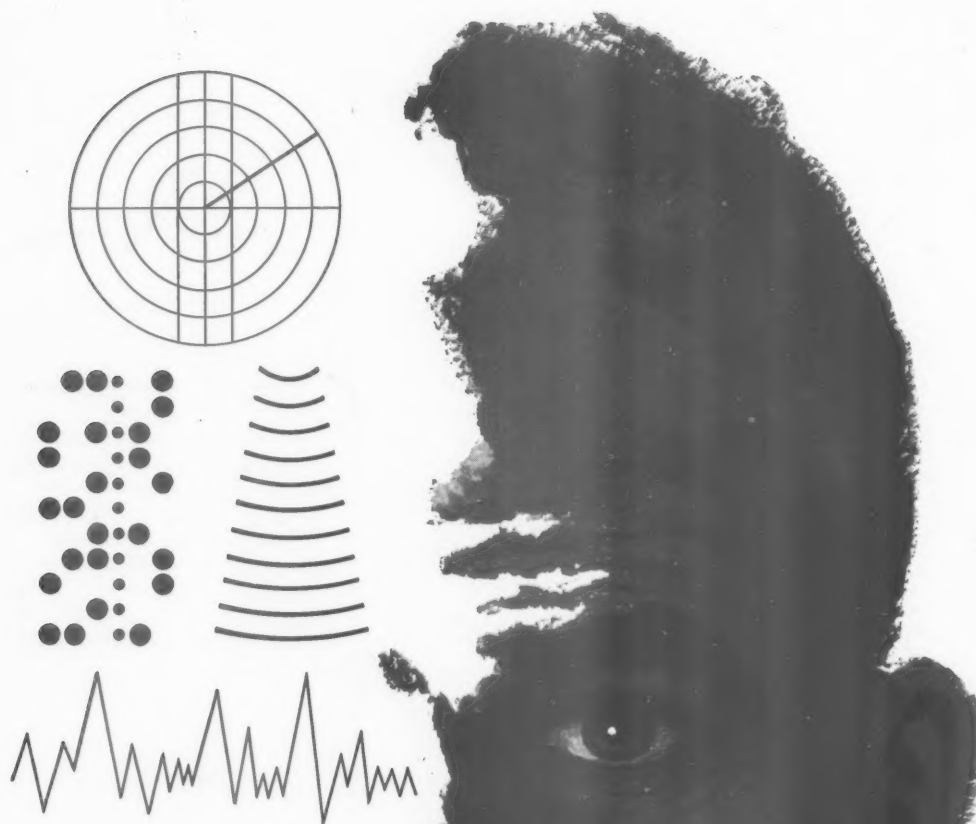
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